NEC

NEC Express5800/100 Series

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NEC Express5800/E110b-M
User's Guide

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Keep this User's Guide at hand for quick reference at anytime necessary.

SAFETY INDICATIONS

Follow the instructions in this User's Guide for your safety to use the modular server.

The modular server contains components with possible danger, hazards that may cause by ignoring warnings, and preventive actions against such hazards.

Modular server components with possible danger are indicated with a warning label placed on or around them as well as described in this User's Guide.

In the User's Guide or warning labels, "WARNING" or "CAUTION" is used to indicate a degree of danger. These terms are defined as follows:

⚠ WARNING	Indicates the presence of a hazard that may result in death or serious personal injury if the instruction is ignored.
⚠ CAUTION	Indicates the presence of a hazard that may cause minor personal injury, including burns, or property damage if the instruction is ignored.

Precautions and notices against hazards are presented with one of the following three symbols. The individual symbols are defined as follows:

	This symbol indicates the presence of a hazard if the instruction is ignored. An image in the symbol illustrates the hazard type. (Attention)
	This symbol indicates prohibited actions. An image in the symbol illustrates a particular prohibited action. (Prohibited Action)
	This symbol indicates mandatory actions. An image in the symbol illustrates a mandatory action to avoid a particular hazard. (Mandatory Action)

(Example)

Symbol to draw attention

Description of a danger

Term indicating a degree of danger

⚠ CAUTION
Plug in to a proper power source of the specified voltage. Use a proper wall outlet. Use of an improper power source may cause a fire or a power leak.

Symbols Used in This User's Guide and Warning Labels

Attentions

	Indicates that improper use may cause an electric shock.
	Indicates that improper use may cause fumes or fire.
	Indicates that improper use may cause fingers to be caught.
	Indicates that improper use may cause loss of eyesight due to laser beam.
	Indicates that improper use may cause personal injury.
	Indicates that improper use may cause explosion.
	Indicates that improper use may cause personal injury.
	Indicates a general notice or warning that cannot be specifically identified.

Prohibited Actions

	Do not disassemble, repair, or modify the modular server. Otherwise, an electric shock or fire may be caused.
	Do not use the modular server in the place where water or liquid may pour. Otherwise, an electric shock or fire may be caused.
	Do not place the modular server near the fire. Otherwise, a fire may be caused.
	Do not touch the modular server with wet hand. Otherwise, an electric shock may be caused.
	Do not touch the component specified by this symbol. Otherwise, an electric shock or burn may be caused.
	Indicates a general prohibited action that cannot be specifically identified.

Mandatory Action

	Unplug the power cord of the modular server. Otherwise, an electric shock or fire may be caused.
	Be sure to provide earthing. Otherwise, an electric shock or fire may be caused.
	Indicates a mandatory action that cannot be specifically identified. Make sure to follow the instruction.

NOTE: This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense.

BSMI Statement

警告使用者：

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CE Statement

Warning: This is a Class A product. In domestic environment this product may cause radio interference in which case the user may be required to take adequate measures (EN55022).

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PREFACE

Welcome to the NEC Express5800/100 series modular server.

The modular server is a power-saving and high-density server equipped with the latest low-power processor "Intel® Atom™ Processor N450".

Read this User's Guide thoroughly to fully understand handling of the modular server and appreciate its functions to the maximum extent.

ABOUT THIS USER'S GUIDE

This User's Guide is a guide for proper setup and use of the modular server.

This User's Guide also covers useful procedures for dealing with difficulties and problems that may arise during setup or operation of the modular server.

Keep this manual for future use.

The following describes how to proceed with this User's Guide.

How to Use This User's Guide

To aid you in finding information quickly, this User's Guide contains the following information:

Chapter 1 Notes on Using Your Modular Server
includes information that needs attention to use the modular server. Make sure to read this chapter before setting up and using the modular server. It also includes requirements and advisory information for transfer and disposal of the modular server.

Chapter 2 General Description
includes information necessary to use the modular server, such as names and functions of its components.

Chapter 3 Setting Up Your Modular Server
tells you how to setup the modular server, make cable connections, and power on your system.

Chapter 4 Configuring Your Modular Server
tells you how to configure the system and provides instructions for running the BIOS Setup Utility.

Chapter 5 Installing and Using Utilities
describes how to install the utilities for the modular server. It also includes a description on using the attached "NEC EXPRESSBUILDER" DVD.

Chapter 6 Maintenance
provides you with all the information necessary to maintain successful operation of the modular server.

Chapter 7 Troubleshooting
contains helpful information for solving problems that might occur with your system.

Chapter 8 Upgrading Your Modular Server
provides you with instructions for upgrading your system with an optional memory and hard disk drives.

Appendix A Specification
provides specifications for your modular server.

Appendix B Using a Client Computer Which Has a CD Drive
describes how to install the management software of EXPRESSBUILDER to the client computer without the DVD drive.

Text Conventions

The following conventions are used throughout this User's Guide. For safety symbols, see "SAFETY INDICATIONS" provided earlier.

IMPORTANT:	Items that are mandatory or require attention when using the modular server
NOTE:	Helpful and convenient piece of information

IN THE PACKAGE

The carton contains various accessories, as well as the modular server itself. See the packing list to make sure that you have everything and that individual components are not damaged. If you find any component missing or damaged, contact your service representative.

- Store the provided accessories in a designated place for your convenience. You will need them to install an optional device or troubleshoot the modular server, as well as to set it up.
- Make a backup copy of each provided floppy disk, if any. Store the original disk as the master disk in a designated place, and use its copy.
- Improper use of any provided floppy disk or DVD/CD-ROM may alter your system environment. If you find anything unclear, immediately ask your service representative for help.

"HARD DISK DRIVE"

The term "hard disk drive" described in this User's Guide represents the following two drives unless otherwise specified.

- Hard disk drive (HDD)
- Solid state drive (SSD)

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Chapter 1

Notes on Using Your Modular Server

This chapter includes information necessary for proper and safe operation of the modular server.

SAFETY NOTES

This section provides notes on using the modular server safely. Read this section carefully to ensure proper and safe use of the modular server. For symbols, see "SAFETY INDICATIONS" provided earlier.

⚠ WARNING

Do not use the modular server for services where critical high availability may directly affect human lives.

The modular server is not intended to be used with or control facilities or devices concerning human lives, including medical devices, nuclear facilities and devices, aeronautics and space devices, transportation facilities and devices; and facilities and devices requiring high reliability. NEC assumes no liability for any accident resulting in personal injury, death, or property damage if the modular server has been used in the above conditions.

Do not disassemble, repair, or alter the modular server.

Never attempt to disassemble, repair, or alter the modular server on any occasion other than described in this User's Guide. Failure to follow this instruction may cause an electric shock or fire as well as malfunctions of the modular server.

Do not remove the battery.

Your modular server contains the lithium and NiMH (or Li-Ion) batteries. (Optional devices also contain various batteries.)
Do not remove the battery. Placing the battery close to a fire or in the water may cause an explosion.

When the modular server does not operate appropriately due to the dead batteries, contact your service representative. Do not disassemble the modular server to replace or recharge the battery by yourself.

Do not use the modular server if any smoke, odor, or noise is present.

If smoke, odor, or noise is present, immediately turn off the system and disconnect the power plug from the outlet, then contact your service representative. Using the modular server in such conditions may cause a fire.

Keep needles or metal objects away from the modular server.

Do not insert needles or metal objects into ventilation holes in the modular server. Doing so may cause an electric shock.

Use the devices only in the specified areas.

Modular servers should be installed in the dedicated Module Enclosure for their uses. Do not install the modular servers in a chassis other than the Module Enclosure. Failure to follow it may result in fire and/or electric shock to occur.

⚠ WARNING

Do not use the equipment in the place where corrosive gases exist.

Make sure not to locate or use the modular server in the place where corrosive gases (sulfur dioxide, hydrogen sulfide, nitrogen dioxide, chlorine, ammonia, ozone, etc) exist.
Also, do not set it in the environment where the air (or dust) includes components accelerating corrosion (ex. sulfur, sodium chloride) or conductive metals. There is a risk of a fire due to corrosion and shorts of an internal printed board.

Do not handle the modular server if it is installed in the Module Enclosure.

To install or remove an option from the modular server, first turn off the power of the modular server and remove the modular server from the Module Enclosure. If you touch components on the modular server with it connected to the Module Enclosure, you may get an electric shock.

Do not install or remove two or more modular servers at a time.

Install or remove modular servers one by one. If you install or remove two or more modular servers at a time or a modular server with the cover of another slot removed, you may get an electric shock.

Do not look into the optical disk drive.

A laser beam used in the optical disk drive is harmful to the eyes. Do not look into or insert a mirror into the drive while the drive is powered. If a laser beam is caught in your eyes, you may lose your eyesight.

⚠ CAUTION

Keep water or foreign matter away from the equipment.

Do not let any form of liquid (water etc.) or foreign matter (e.g., pins or paper clips) enter the equipment. Failure to follow this warning may cause an electric shock, a fire, or a failure of the equipment. When such things accidentally enter the equipment, immediately turn off the power and disconnect the power plug from the outlet. Do not disassemble the equipment. Contact your service representative.

Make sure to complete device installation.

Always install a modular server, hard disk drive, and option board firmly. An incompletely installed device may cause a contact failure, resulting in smoking or fire.

Do not use any unauthorized interface cable.

Use only interface cables provided by NEC and locate a proper device and connector before connecting a cable. Using an unauthorized cable or connecting a cable to an improper destination may cause a short circuit, resulting in a fire.
Also, observe the following notes on using and connecting an interface cable.

- Do not use any damaged cable connector.
- Do not step on the cable.
- Do not place any object on the cable.
- Do not use the equipment with loose cable connections.
- Do not use any damaged cable.

Avoid installation in extreme temperature conditions.

Components on modular server or components in Module Enclosure may get very hot. Leave them until their internal components fully cool down before installing/removing any component. The air exhausted from the fan also gets very hot. Do not let your hands or face close to the exhaust hole.

Avoid contact with the equipment during thunderstorms.

Disconnect the power plug from the outlet when a thunderstorm is approaching. If it starts thundering before you disconnect the power plug, do not touch any part of the component including the cables. Failure to follow this warning may cause a fire or an electric shock.

Keep animals away from the equipment.

Pet's discharges or fur may enter the equipment and cause a fire or electric shock.

FOR PROPER OPERATION

Observe the following notes for successful operation of the equipment. Use of the equipment ignoring the notes will cause malfunctions or failures of the equipment.

Modular server

- The modular server assembly must be installed in the Module Enclosure.
- Install or remove modular servers one by one.
- Hold the portions covered with metal plates when a modular server is installed or removed. To carry a modular server, put it into the case in which the modular server was contained at the purchase and pack it into the package.
- The modular server is extremely sensitive to static electricity. Make sure to touch the metal frame of the equipment to discharge static electricity from your body before handling the modular server. Do not touch the modular server terminals or on-board parts by a bare hand and place the modular server directly on the desk.
- Check and adjust the system clock before the operation if any of the following conditions is applicable.
  - After carriage of modular server
  - After storage of modular server
  - After the modular serveris entered into the pause state under the environmental condition enduring device operation (temperature: 10 to 40°C, humidity: 20 to 80%)

  Check the system clock at the rough rate of once per month. When the system clock is installed in a system requiring high time precision, it is recommended to use a time server (NTP server).
  If the system clock is remarkably delayed or advanced as the passage of time in spite of adjustment, contact your service representative to ask maintenance.
- Store the unit under the storage condition (temperature: –10 to 55°C, humidity: 20 to 80%, without condensation) to allow internal devices and the equipment to operate correctly in the next operation.
- Before turning off the power of a modular server, shutdown the modular server correctly.
- After turning off the power of a modular server, wait for at least 5 seconds before turning on.
- The modular server contains precision component that is easily affected by drastic temperature change. If the modular server is used after storage or relocation, make sure that the modular server is fully adapted to the operating environment.

- The modular server can be powered on by pressing the POWER/SLEEP switch or using the remote power-on feature from the management PC. In either case, you must wait for at least 5 seconds before performing power-on operation (after the modular server is inserted into Module Enclosure, or after the power is supplied to the Module Enclosure).
  If power-on operation is performed within 5 seconds, you may fail to power on the modular server. In such a case, make sure that the power is supplied to the modular server, then press the POWER/SLEEP switch to turn on the power.
- Remove a modular server after turning off the power of the modular server.
- Do not perform any of the following operation during POST (including similar operations from external applications).
  - Press the POWER/SLEEP switch of the modular server.
  - Remove the modular server from the Module Enclosure.
  - Disconnect the power cords from EcoPowerGateway and the power unit of the Module Enclosure.

Optional memory, hard disk drive, and other electronic components

- These components are extremely sensitive to static electricity. Make sure to touch the metal frame of the equipment to discharge static electricity from your body before handling the components. Do not touch the terminals or parts on the components by a bare hand and place the components directly on the desk.
- Make sure that the options are NEC-specified optional devices for the modular server. Even if an option can be installed or connected to the modular server, the option may not operate properly and further the modular server itself may be defected. If such an option causes the modular server to be defected or damaged, you will be charged for the repair within the warranty period.
- Do not give excess shocks or vibrations to the hard disk drive. Failure to follow it may cause the hard disk drive to be defected.
- The internal option device contains precision component that is easily affected by drastic temperature change. If the device is used after storage or relocation, make sure that the device is fully adapted to the operating environment.
- Turn off the cellular phone or pager. Radio interference may cause malfunctions of the modular server.

TRANSFER TO THIRD PARTY

The following must be observed when you transfer (or sell) the modular server or software provided with the modular server to a third party:

Modular Server

Make sure to provide this manual and accessories along with the modular server to a third party.

IMPORTANT: About data on the hard disk drive

Be sure to take appropriate measures not to leak important data (e.g., customers' information or companies' management information) on the removed hard disk drive to any third parties.

Data seems to be erased when you empty "Recycle Bin" of Windows or execute the "format" command of the operating system. However, the actual data remains written on the hard disk drive. Data not erased completely may be restored by special software and used for unexpected purposes.

It is strongly recommended that the software or service (both available at stores) for data erasure should be used in order to avoid the trouble explained above. For details on data erasure, ask your sales representative.

Provided Software

To transfer or sell any software application that comes with the modular server to a third party, the following requirements must be satisfied:

- All provided software applications must be transferred and no backup copies must be retained.
- Transfer requirements listed in "Software License Agreement" that comes with each software application must be satisfied.
- Software applications that are not approved for transfer must be uninstalled before transferring the modular server.

DISPOSAL AND CONSUMABLES

- Dispose of the modular server, hard disk drives, DVD-ROM, Module Enclosure, EcoPowerGateway, option board, and battery according to all national laws and regulations. Also dispose of the power cord provided with the modular server to avoid diversion to some other devices.

⚠ WARNING

For dispose of the battery on the mother board of the modular server, consult with your service representative.

IMPORTANT: It is the user's responsibility to completely erase or modify all the data stored in storage device such as hard disk drive so that the data cannot be restored.

- The modular server contains some components that are only good for a limited period of time and require replacement. For stable operation of the modular server, NEC recommends you replace these components on a regular basis. Consult with your service representative for replacement or the product lives.

REGARDING THE TRANSPORTATION OF THIS SYSTEM

This system and/or associated options and accessories may be using lithium metal batteries or lithium ion batteries.

There may be restrictions regarding the air or sea transportation of such lithium batteries.

Please contact your service representative prior to transporting this system and/or its options.

USER SUPPORT

Before asking for repair, do the following when the modular server appears to fail:

1. Check if the power cord and the cables to other devices are properly connected.
2. See Chapter 7 to find if your problem fits the description. If it does, take the recommended measure for it.
3. Check if the software required for operation of the modular server is properly installed.
4. Use a commercially available anti-virus program to check the modular server.

If the modular server still appears to fail after you have taken the above actions, consult with your service representative immediately. Take notes on lamp indications of the modular server and alarm indications on the display unit before consultation, which may provide a significant help to your service representative.

Advice for Health

The longer you keep using the computer equipment, the more you become tired, which may cause disorders of your body. When you use a computer, observe the following to keep yourself from getting tired:

Good Working Posture

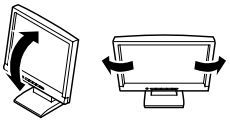
You have good posture if the following are satisfied when you use a computer:

- You sit on a chair with your back straight.
- Your hands are parallel with the floor when you put them on the keyboard.
- You look at the screen slightly lower than your eye height.

You have "good working posture" as described in the above when no part of your body is under excess strain, in other words when your muscles are most relaxed.

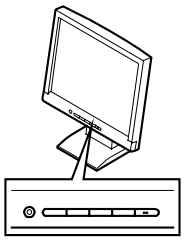
You have "bad posture" when you sit with your back hunched up or you operate a display unit with your face close to the screen. Bad working posture may cause eye strain or poor eyesight.

Adjustment of Display Unit Angles



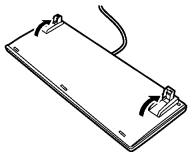
Most display units are designed for adjustment of the horizontal and vertical angles. This adjustment is important to prevent the screen from reflecting bright lights and to make the display contents easy to see. You will not be able to keep "good working posture" and you will feel more tired than you should if you operate a display unit without adjusting horizontal and vertical angles.

Adjustment of Screen Brightness and Contrast

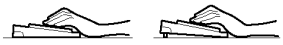


The display unit has brightness and contrast adjustment functions. The most suitable brightness and contrast depend on the individual and the working environment (well-lighted room or insufficient light). Adjust brightness and contrast so that the screen will be easy to see. An extremely bright or dark screen will give a bad effect to your eyes.

Adjustment of Keyboard Angle



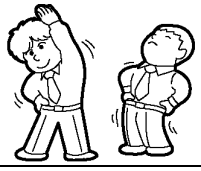
The keyboard provided with the modular server is designed for adjustment of an angle. Adjust the keyboard angle at which the keyboard is easy to operate. The adjustment assists in reducing strain on your shoulders, arms, and fingers.



Cleaning of Equipment

Clean equipment regularly. It is difficult to see the display contents on a dusty screen. Keeping equipment clean is also important for your sight.

Fatigue and Rest



If you feel tired, you should stop working and do light exercises.

Chapter 2

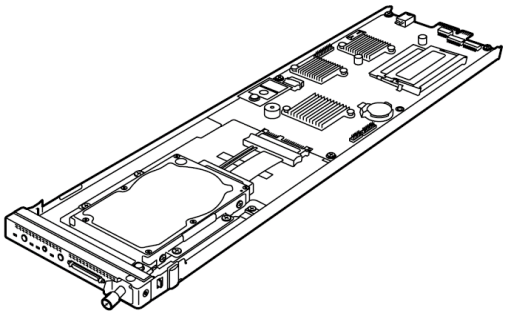
General Description

This chapter provides information that you should be familiar with before using the modular server. It includes names and features of the components and features of the modular server.

STANDARD FEATURES

High performance

- High-performance and low-power Intel® Atom™ Processor N450
- High-speed 1000BASE-T interface x 2 (1Gbps supported)
- High-speed disk access (Serial ATA2)



Server optimized for data center

- With high-density design, up to 20 modular servers in 3U enclosure, or 160 to 240 modular servers in 42U rack can be installed.
- Operation at 40ºC in environmental temperature is supported.
- With low-power Atom™ processor, up to 240 modular servers can be installed in generic data center environment.
- The optimum power distribution and the redundant power supply are supported by EcoPowerGateway (centralized power management module) conforming to 80 PLUS Gold.
- Power optimization in proportion to load
- Maintenance/replacement of modular servers can be performed individually with exclusive hosting feature
- Factory-installed EXPRESSSCOPE® Engine 2 allows simplified operation and resource management.
- Simplified resource management with sliding tag
- Easy installation with simplified rails

Management Utilities

- NEC ESMPRO
- Remote monitoring feature (EXPRESSSCOPE engine)

High-reliability

- Temperature detection
- Error notification
- Internal voltage monitoring feature
- Internal fan monitoring feature
- BIOS password feature

Self-diagnosis

- Power On Self-Test (POST)
- Test and Diagnosis (T&D)

Many Available Features

- Software power-off
- Remote power-on feature
- AC-Link feature

Maintenance Features

- Off-line Maintenance Utility

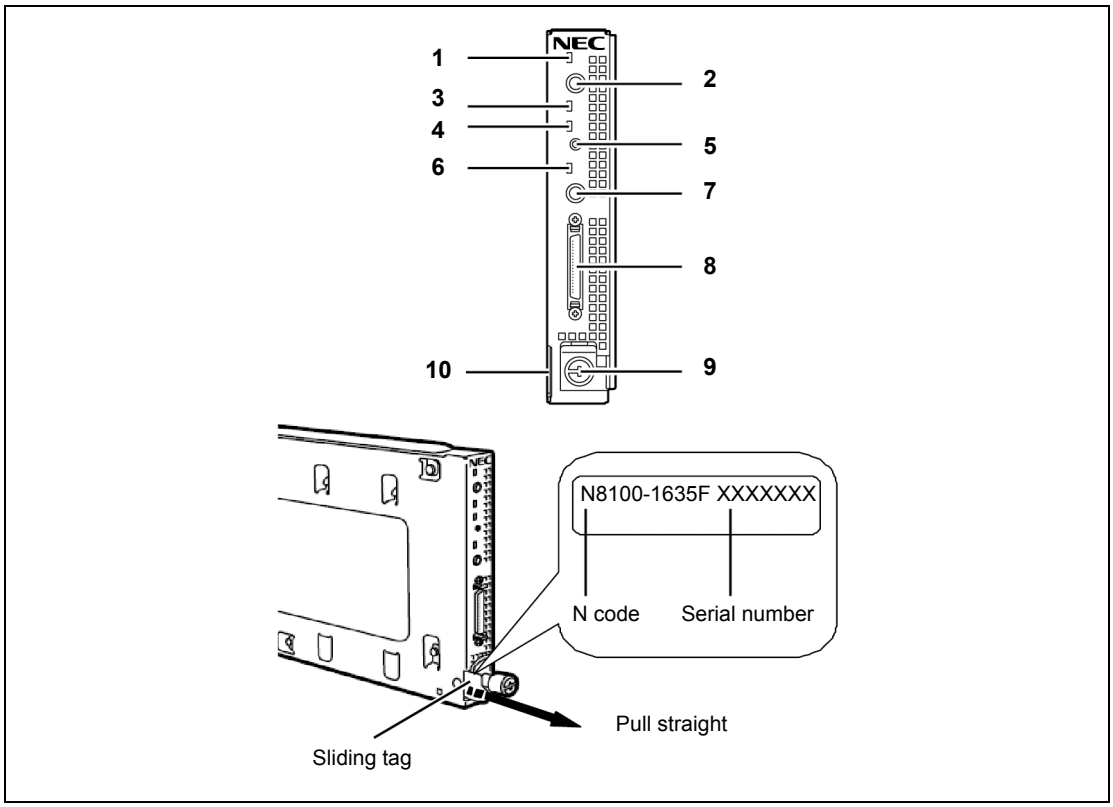
Easy and Fine Setup

- SETUP (BIOS setup utility)

NAMES AND FEATURES OF COMPONENTS

This section describes the names and features of the components in the device.

Front View



1 POWER/SLEEP lamp (green)
The lamp goes on green when the modular server is powered on.

2 POWER/SLEEP switch
The switch is intended to turn on or off the power of the modular server itself.
Pressing the switch for 4 seconds or longer causes the power supply to be turned off forcibly.

3 DISK ACCESS lamp (green)
The lamp indicates access status of hard disk drive.

4 STATUS lamp (green/amber)
The lamp indicates the status of the modular server. See "Lamp Indications" described later for the indications and meanings of the lamp.

5 DUMP (NMI) switch
Press this switch to run the memory dump. Not used in usual operation.

6 UID (Unit ID) lamp (blue)
The lamp is intended to identify the modular server in the system. The lamp is lit by a switch or software command.
When the recognize command is received from software, the lamp blinks.
If you press the ID switch, the lamp goes on.

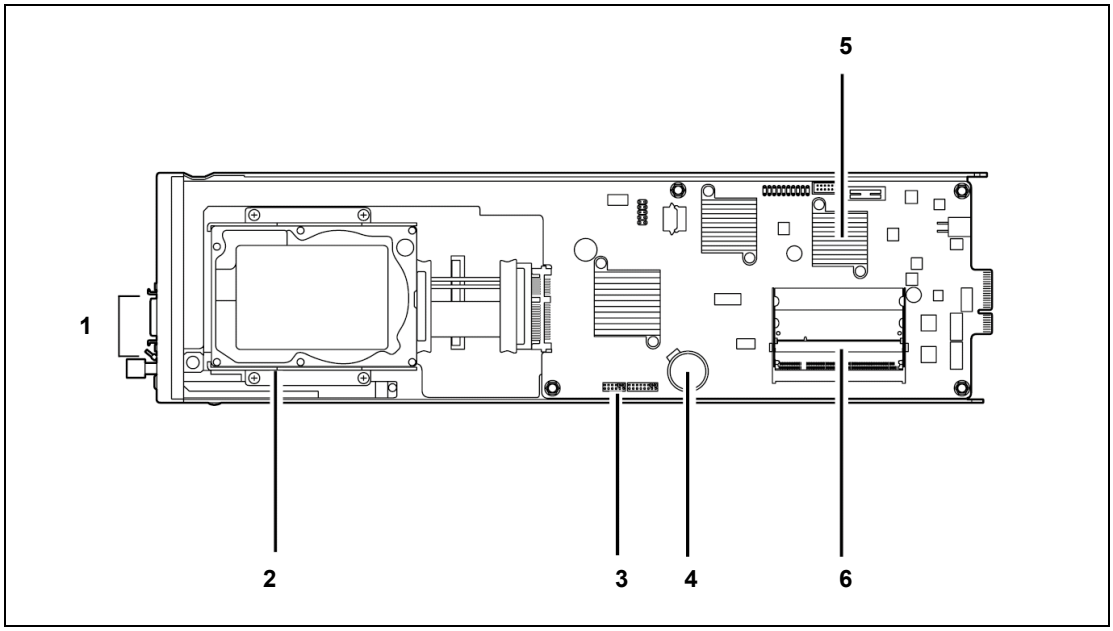
7 UID switch
Press this switch to turn on or off the UID lamps on the modular server and at rear of the Module Enclosure.

8 SUV connector
This connector sends or receives various signals. Connect the SUV cable that comes with the N8141-49F Module Enclosure (1way) when using the display unit, serial interface device, and USB device.

9 Lock lever
Locking mechanism to secure the modular server to the Module Enclosure.

10 Sliding tag
A label indicating model number and serial number of the modular server is attached.

Internal View



1 SUV connector

2 Hard disk drive bracket

3 CMOS/password clear jumper switch

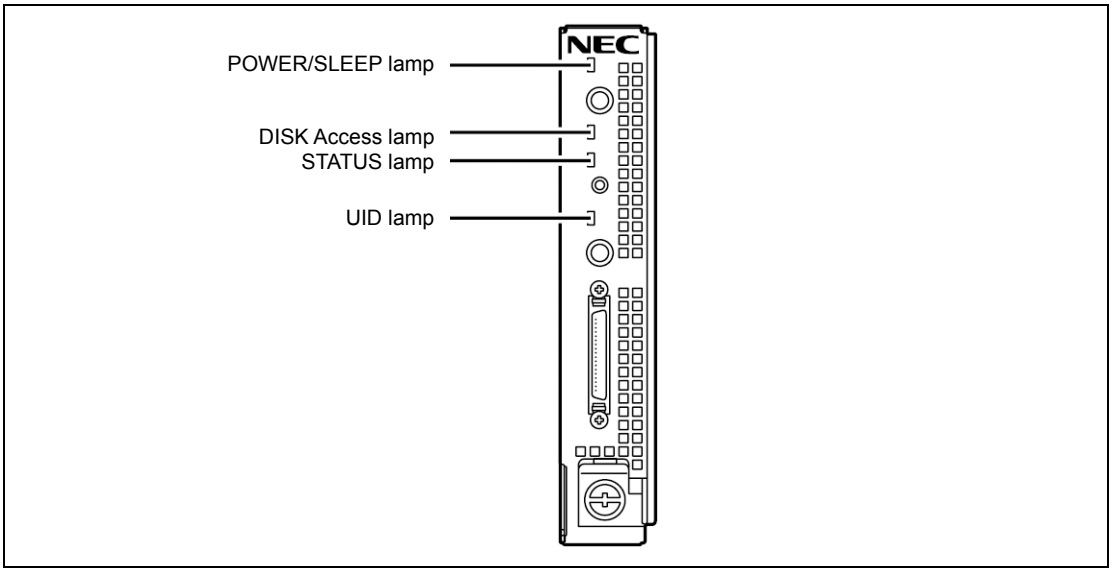
4 Lithium battery

5 Processor (CPU)

6 DIMM socket
Upper slot: #1
Lower slot: #2

Lamp Indications

This section describes the positions and display meanings of the lamps on the modular server.



POWER/SLEEP Lamp

The POWER/SLEEP lamp lights green while the power of the modular server is on. The lamp goes off while the modular server is off-powered.

If the OS supports the power-saving mode such as Windows, pressing the POWER/SLEEP switch blinks the POWER/SLEEP lamp in green and places the server in the power-saving mode. Press the POWER/SLEEP switch to turn out the POWER/SLEEP lamp and place the server back in the normal mode.

The power-saving mode is only available when the OS supports the power-saving feature. Some OS's allow you to set the server to automatically turn in the power-saving mode when no access is made to the server for a certain period of time or to select the power-saving mode with a command.

DISK Access Lamp

The DISK Access lamp lights green while accessing the internal hard disk drive.

STATUS Lamp

The STATUS lamp stays lit in green when the modular server is in successful operation. When the STATUS lamp is lit or blinking in amber, it indicates that the system has failed.

In addition, you can view the detailed information on error message on virtual LCD when the STATUS lamp is lit or blinking in amber. You can use the virtual LCD through the Web browser of EXPRESSSCOPE engine (BMC) or NEC ESMPRO Manager.

See Chapter 7 for indications of the STATUS lamp and virtual LCD, descriptions, and actions to take.

NOTE: If the modular server has the NEC ESMPRO installed, you can view the System Event Log (SEL) to identify the cause of a trouble.

UID (Unit ID) Lamp

Pressing the ID switch brings the lamp to light, and pressing again brings the lamp to go off. The ID lamp is intended to identify a specific modular server in the system in which more than one modular server is installed. Making this lamp being lit can help the maintenance work to identify the faulty device.

If you press the ID switch, the lamp goes on. When the recognize command is received from management software such as NEC ESMPRO Manager, the lamp blinks.

USING YOUR MODULAR SERVER

This section describes the basic operation of the modular server.

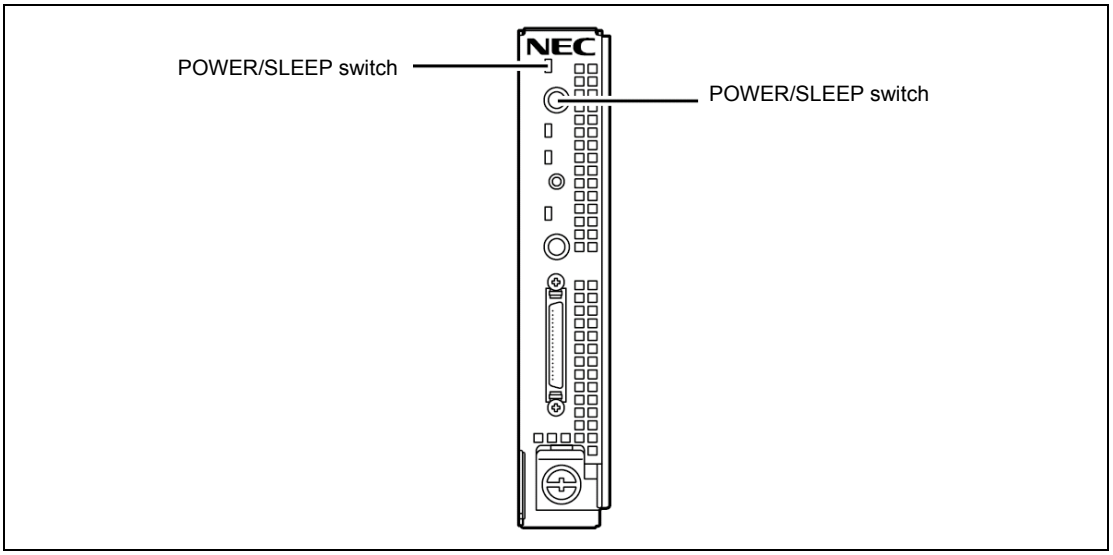
Power-on of Modular Server

Follow steps below to power on the modular server.

1. Power on the display unit and peripheral devices connected to the modular server.
2. Press the POWER/SLEEP switch on the front panel of the modular server.

   The POWER/SLEEP lamp on the modular server goes on green.

   After a while, POST (Power On Self Test) starts.



IMPORTANT: When the power is supplied to the modular server, the initial diagnosis is executed for about 5 seconds. In this period, the POWER/SLEEP switch is disabled. Power on the modular server about 5 seconds immediately after you installed the modular server in the Module Enclosure (1way) or power is supplied to the modular server.

While the POST progress screen appears, the modular server runs the self-diagnosis program (POST) to diagnose the modular server itself. See "POST" described later for details. At the completion of POST, OS is booted.

NOTE: If a fault is found during POST, it is interrupted and the error message notifying the fault appears. See Chapter 7.

POST

POST (Power On Self-Test) is the self-diagnostic program stored in the modular server.

When you power on the modular server, the system automatically runs POST to check the mother board, memory module, CPU module, keyboard, and mouse. POST also displays messages of the BIOS SETUP utility, such as the start-up message, while in progress.

With the factory setup of the modular server, the NEC logo appears on the display unit (if connected) while POST is in progress. To display the POST check results, press **Esc**.

> **NOTE:** You can set the POST check results to appear on the display unit without pressing **Esc**. To do so, select "Enabled" for "Boot-time Diagnostic Screen" under the Advanced menu of the BIOS SETUP utility. See Chapter 4 for details.

You don't always need to check the POST check results. Check messages that POST displays when:

- you use the modular server for the first time.
- the modular server appears to fail.
- the modular server beeps for many times between power-on and OS start-up.
- an error message appears on the display unit.

POST Execution Flow

The following describes the progress of POST in the chronological order.

> **IMPORTANT:** Do not make unnecessary key entries or perform mouse operations while POST is in progress.

1. After a few seconds from power-on, POST starts checking the memory. The count message of the memory appears on the screen of the display unit (if connected).

   It may take approximately one minute for the screen display to appear after rebooting the modular server.

2. Some messages appear upon completion of the memory check. These messages appear to indicate that the system has detected the CPU and other devices installed.

3. After a few seconds, POST displays the following message prompting you to launch the BIOS SETUP utility, stored in the system memory of the modular server. This message appears at bottom left on the screen.

   ```
   Press <F2> to enter SETUP
   ```

   Launch the BIOS SETUP utility when you need to change the settings to meet the requirements for the modular server. Unless the above message is displayed with an error message, you don't have to launch the utility. (Ignore the message. POST will automatically proceed.)

   To launch the SETUP utility, press **F2** while the above message is displayed. See Chapter 4 for setup and parameters.

   The modular server automatically restarts POST all over again when you exit the SETUP utility.

4. If you have set the password using the BIOS SETUP utility, the password entry screen appears upon successful completion of POST.

   Up to three password entries will be accepted. Three incorrect password entries disable the system to boot. In such a case, turn off the power and wait about 5 seconds before turning on to boot the modular server.

   > **IMPORTANT:** Do not set a password before installing an OS.

5. The OS starts when POST completes.

POST Error Messages

When POST detects an error, it displays an error message on the screen. See Chapter 7 for POST error codes.

If you have switched a console to check the POST error message, cycle the power to make the keyboard available.

> **IMPORTANT:** Take a note on the messages displayed before consulting with your service representative. Alarm messages are useful information for maintenance.

Power-off of Modular Server

Turn off the power in the following procedure.

1. Shutdown OS.
2. Press the POWER/SLEEP switch on the modular server.
   The POWER/SLEEP lamp on the modular server goes off.

   < To power off the entire system >

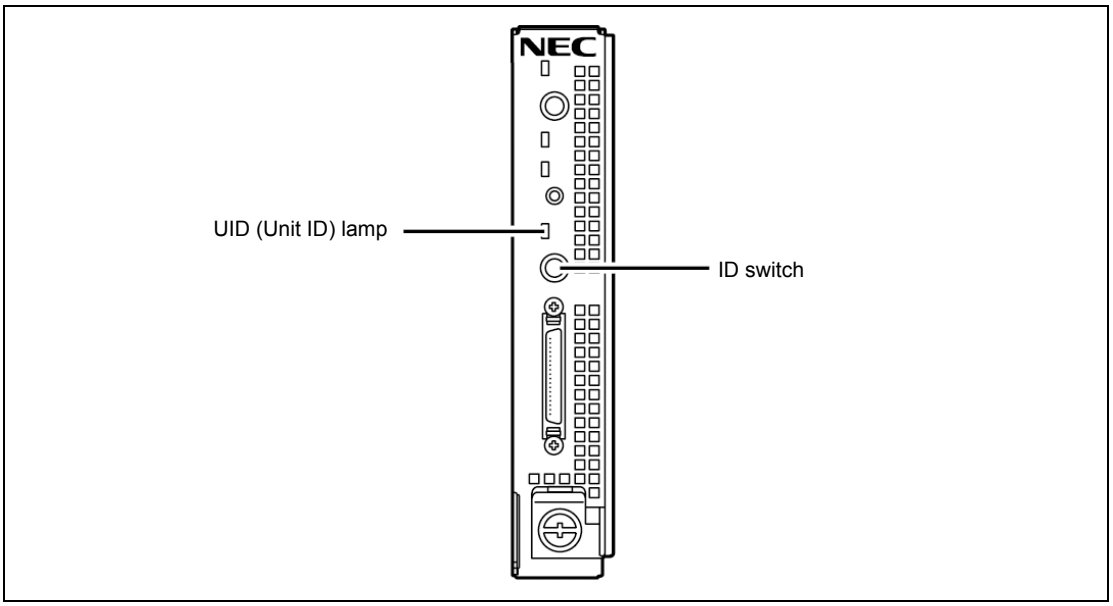
   Shutdown all the modular servers installed in the Module Enclosure.
   Turn off the power of modular servers, and turn off the DC output switch on the power unit (EcoPowerGateway).
   Refer to the EcoPowerGateway User's Guide for more information.

Device Identification

To identify the device to be maintained among more than one device, UID (Unit ID) lamp is used.

The UID lamp allows you to identify the device subject to maintenance among more than one modular server installed in the Module Enclosure.

The UID lamp on modular server can also be made blinking blue by proper software commands from the management PC on the network. In addition, pressing the UID switch on the modular server brings the UID lamp to light.



Chapter 3

Setting Up Your Modular Server

This chapter describes how to set up the modular server appropriate for your system, on a step-by-step basis.

SETTING HARDWARE

Conduct setting up of hardware in the following order:

1. Install the rack. (Refer to the manual that comes with the rack.)
2. Install separately purchased options to Module Enclosure. (Refer to the Module Enclosure User's Guide.)
3. Install the Module Enclosure to the rack. (Refer to the Module Enclosure User's Guide.)
4. Install the DIMMs on the modular server. (See Chapter 8.)
5. Install the hard disk drive on the modular server. (See Chapter 8.)
6. Install the modular server to the Module Enclosure.
7. Connect the cable between the Module Enclosure and EcoPowerGateway. (Refer to the EcoPowerGateway User's Guide.)
8. Turn on the DC output switch on EcoPowerGateway. (Refer to the EcoPowerGateway User's Guide.)
9. Run BIOS to provide settings appropriate to your hardware configuration and usage.

   See Chapter 4 for details of BIOS configuration. Be sure to adjust the system clock.

MAKING BACKUP COPIES OF SYSTEM INFORMATION

Save the information after completing the system setup. The system information includes the current BIOS settings and any specific information for the server.

Without the backup data, you will not be able to recover the information.

You can save the information by the following process.

1. Use SUV cable to connect a Flash FDD or USB FDD to the Modular Server.

   The SUV cable is provided with N8181-49F Module Enclosure (1way).
   See "Making Connection" described later for how to connect the SUV cable.

2. Insert the NEC EXPRESSBUILDER DVD-ROM into the optical disk drive and reboot the system.

   The system will start from NEC EXPRESSBUILDER, and the [Boot selection] menu will appear.

3. Select [Tool menu (Normal mode)].

4. Select [English].

5. Select [Maintenance Utility].

6. Select [System Information Management].

7. Select [Save].

IMPORTANT: This guide contains procedures to use a floppy disk, however, your modular server is not equipped with factory-installed floppy disk drive. Use the optional Flash FDD or USB FDD.

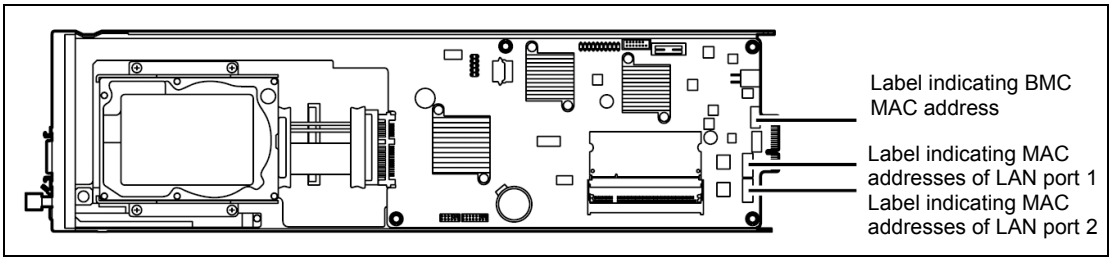
BEFORE INSTALLING MODULAR SERVER

Be sure to check the MAC addresses before installing a modular server in the Module Enclosure.

Check of MAC Address

The MAC addresses indicate the addresses specific for the network. It is expressed by 12-digit alphanumeric. Each of the modular server has two LAN MAC addresses and one BMC MAC address. Check the MAC addresses before installing a modular server in the Module Enclosure.

The MAC addresses are indicated in the area as shown in the figure below.


Label indicating BMC MAC address
Label indicating MAC addresses of LAN port 1
Label indicating MAC addresses of LAN port 2

The LAN MAC addresses can be checked from the proper OS command. The BMC MAC address can be checked from the BIOS SETUP utility.

Installing DIMM

Install DIMMs according to Chapter 8.

Installing the Hard Disk Drive

Install a hard disk drive according to the procedure described in Chapter 8.

IMPORTANT:

- The hard disk drive is extremely sensitive to static electricity. Make sure to touch the metal frame of the modular server to discharge static electricity from your body before handling the hard disk drive. Do not touch the pins, leads, or circuitry and place the hard disk drive directly on the desk. For static notes, see "Anti-static Measures" in Chapter 8.
- Handle the hard disk drive carefully so that the hard disk drive may not be given excess shocks and vibrations.

INSTALLING THE MODULAR SERVER

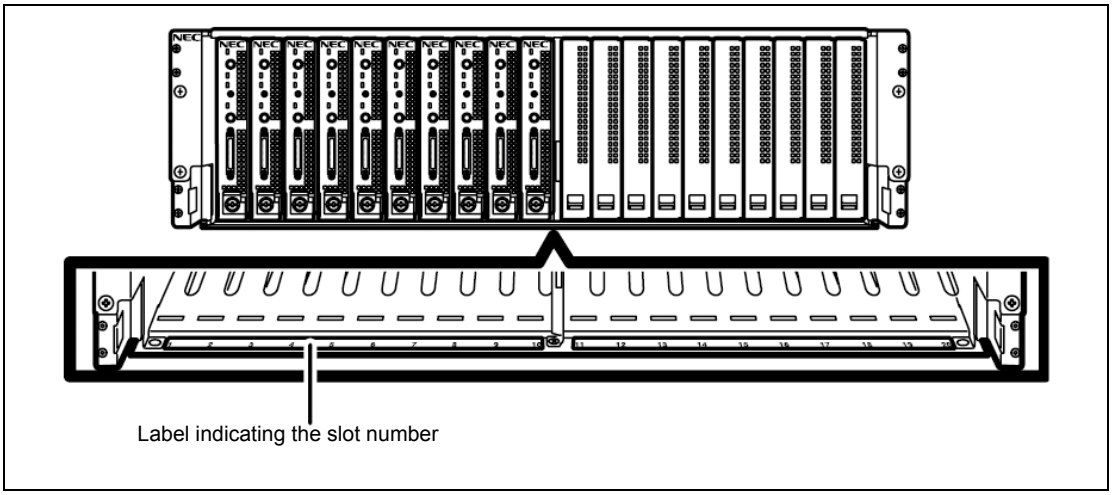
Install the modular server in the dedicated Module Enclosure. Refer to the User's Guide of Module Enclosure for how to install the modular server.

Additional Slots

Check the installation position of the additional slots of the Module Enclosure.

Install the modular server in slot 1 (the leftmost slot) to slot 20 (the rightmost slot).

Install the modular server starting from the youngest slot number (in the ascending order).



IMPORTANT: To install the Modular Servers in slots 11 to 20, you need to install N8181-75 Additional fan box.

Refer to the Module Enclosure User's Guide for how to install the additional fan unit.

Installation

You may install the modular server while the Module Enclosure is being powered (that is, the devices in the other slot are operating). The following shows an example. You may take similar steps to install the Modular Servers in other slots.

⚠ WARNING

Observe the following instructions to use the modular server safely. Failure to follow these instructions may result in death or serious personal injury. See pages 1-2 to 1-6 for details.

- Do not touch the inside of the Module Enclosure.

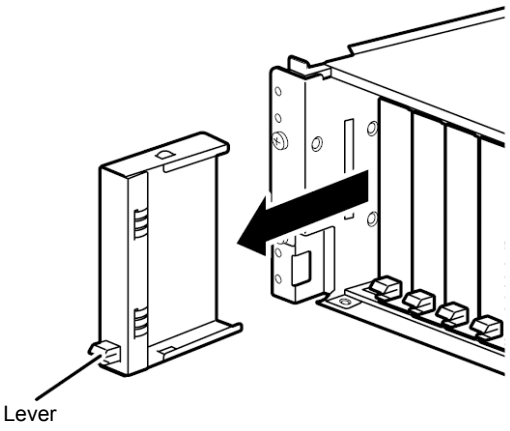
⚠ CAUTION

Observe the following instructions to use the modular server safely. Failure to follow these instructions may cause a fire, personal injury, or property damage. See pages 1-2 to 1-6 for details.

- Do not use the modular server in any other places than specified.

IMPORTANT: The modular server is extremely sensitive to static electricity. Make sure to touch the metal frame of the cabinet to discharge static electricity from your body before handling the modular server. Do not touch the pins, leads, or circuitry and place the modular server directly on the desk. For static notes, see "Anti-static Measures" in Chapter 8.

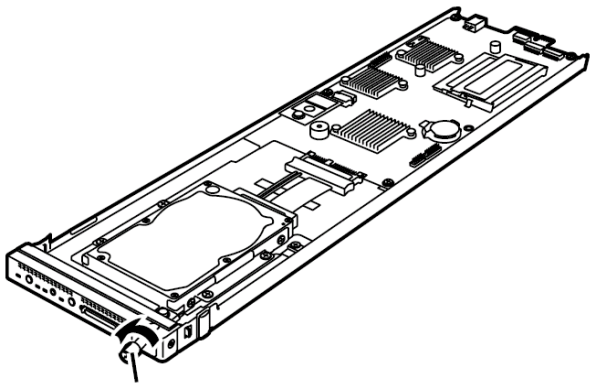
1. Locate the slot to install the modular server.
2. If the slot to install the modular server has a blank cover, hold its lever to unlock, take the blank cover out of the slot.



IMPORTANT:

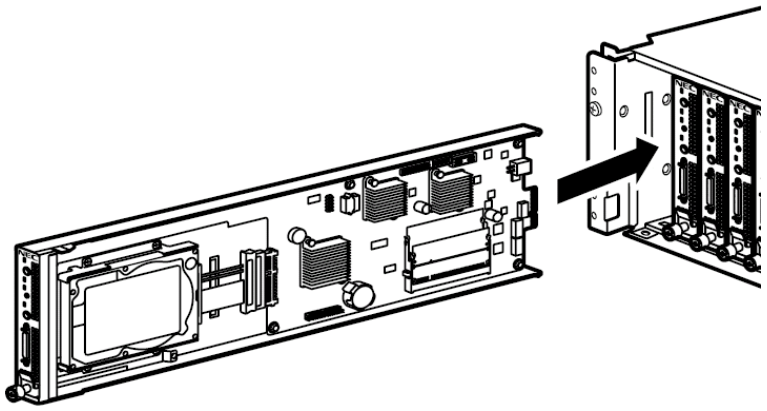
- Keep the removed blank cover for future use.
- Remove the blank cover from the target slot only.

3. Put the modular server on the clean, rigid and flat desk. Loosen the thumbscrew to open the lock lever.



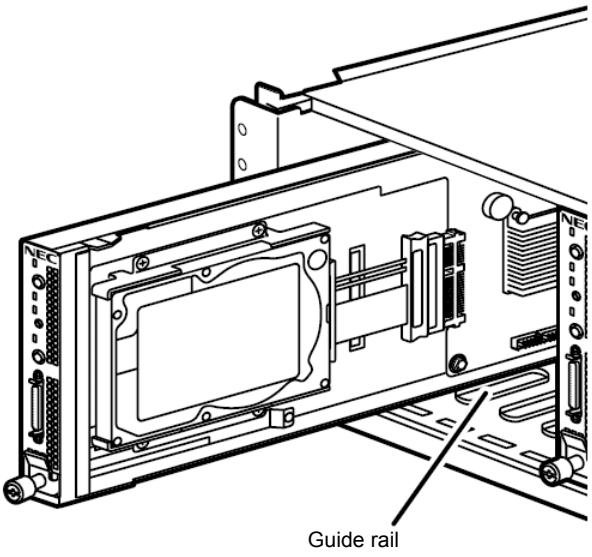
IMPORTANT: The modular server contains a hard disk drive that is easily affected by the dust, water, shocks and vibrations. Take strict care to handle it.

4. Hold firmly the frame of the modular server so that the surface to connect a hard disk drive faces right and the card edge faces the Module Enclosure side.



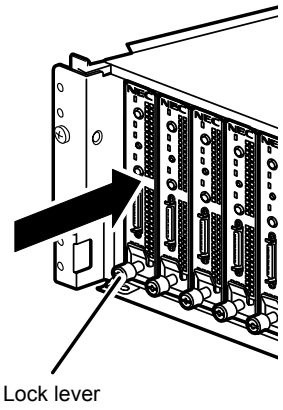
IMPORTANT: Do not hold the lock lever. Doing so may cause the modular server to fall down or be damaged due to deformed lock lever.

5. Align the frame of the modular server with the guide rail on the Module Enclosure. Insert the Modular Server into the halfway of the Module Enclosure (approximately 20 cm) slowly and carefully.



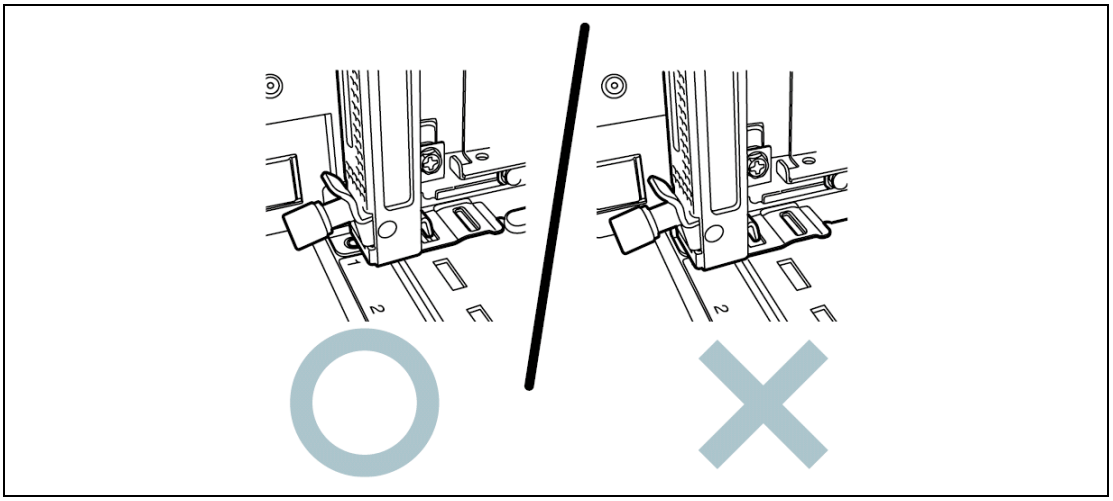
6. Fully release the lock lever, push the frame of the modular server, and insert the Modular Server into the Module Enclosure slowly and carefully to the end.

The card edge of the Modular Server is connected with the connector in the Module Enclosure.



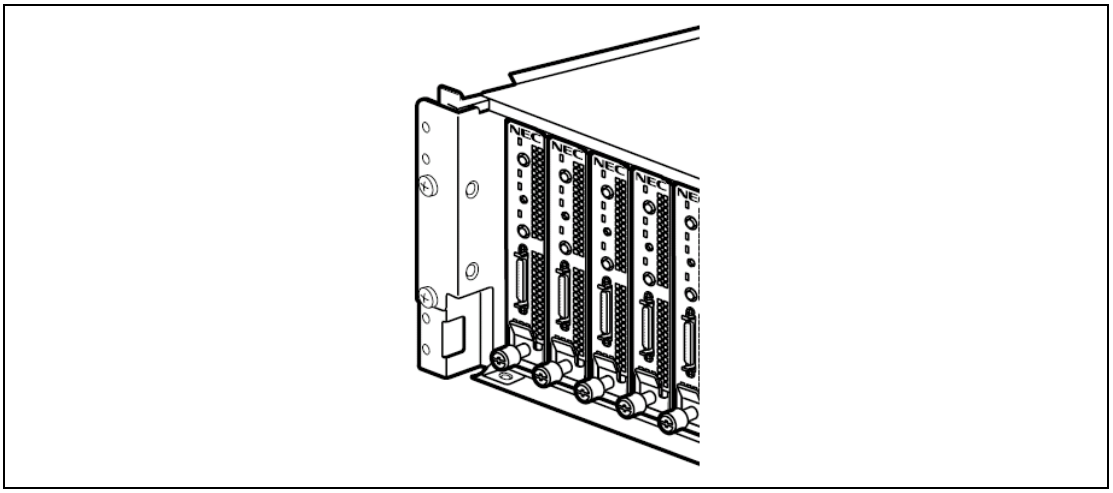
NOTES:

- Push the front of the Modular Server into the Module Enclosure to the end slowly and carefully until the card edge is inserted into the connector.
- Make sure that a hook of the lock lever is engaged with the hole on the Module Enclosure as shown in the figure below.

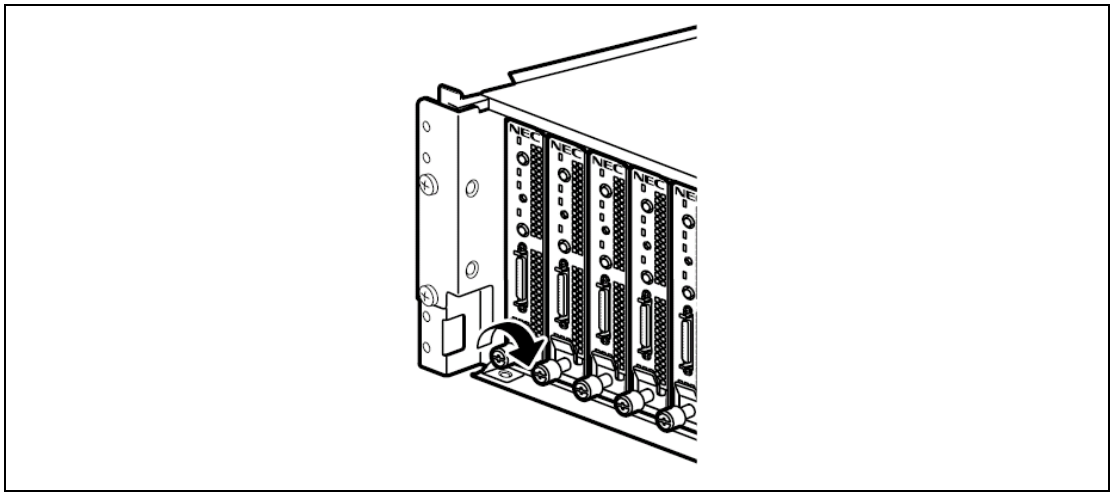


7. Close the lock lever slowly.

If the lock lever is not fully closed, check the hook position according to the previous step. The lock lever and/or the Module Enclosure may be damaged if the lock lever is forcedly closed with loose engagement.



8. Tighten the thumbscrew of the lock lever and fix the modular server into the Module Enclosure.

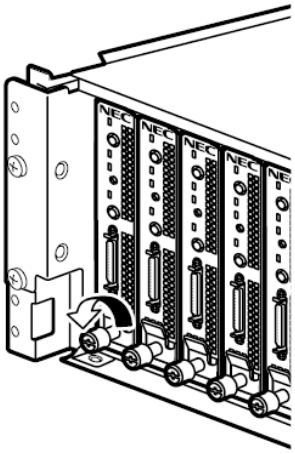


This completes installation.

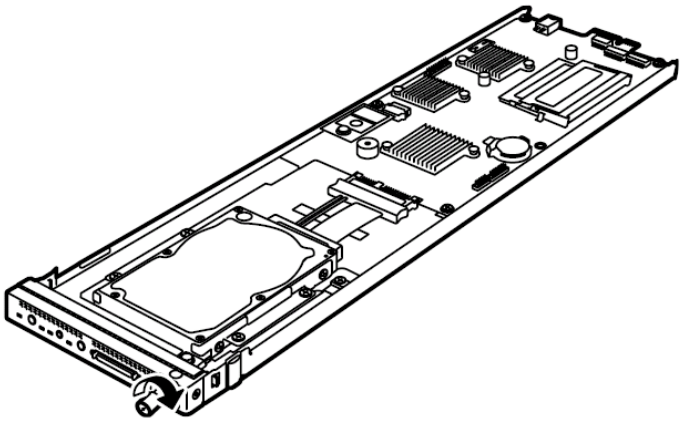
Removal

Take the following steps to remove the modular server from the Module Enclosure.

1. Shutdown the OS, or press the POWER/SLEEP switch on the modular server to turn off the power.
2. Loosen the thumbscrew on the lock lever to unlock the modular server.

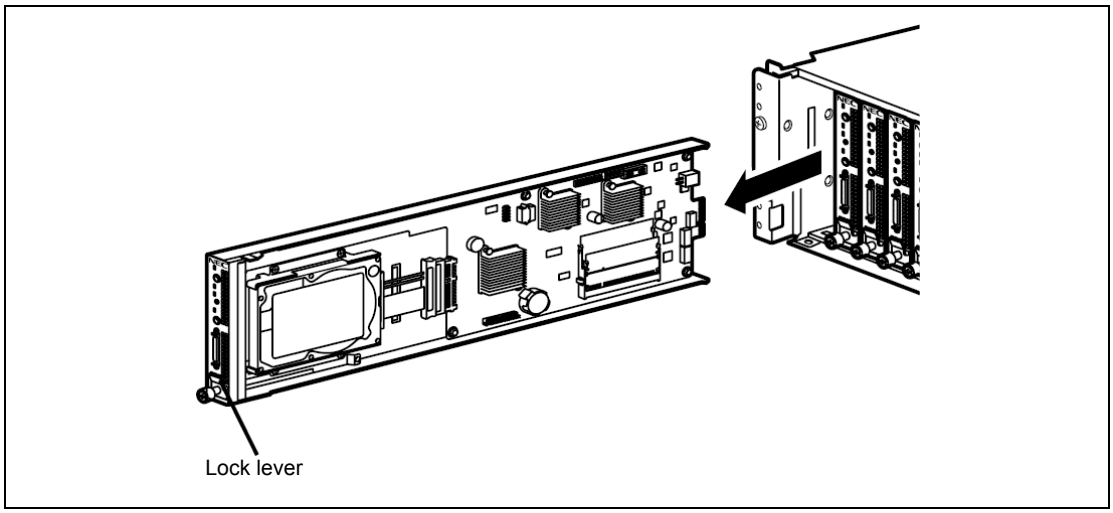


3. Open the lock lever.



NOTE: Fully open the lock lever until it stops.

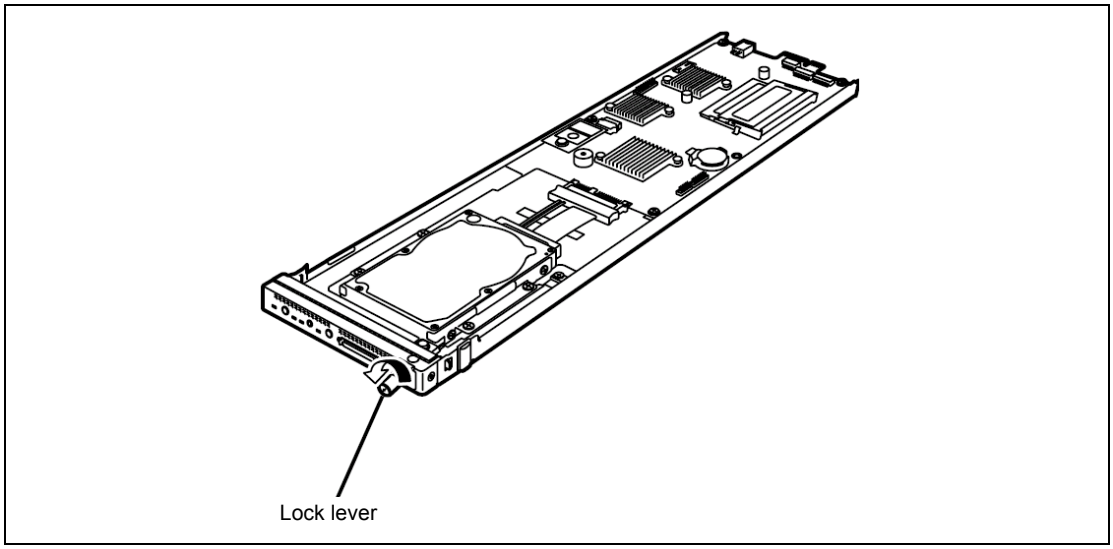
4. Hold the lock lever and pull the modular server out from the Module Enclosure. Pull out approximately 10 cm so that you can hold the top and bottom of the frame of the modular server.



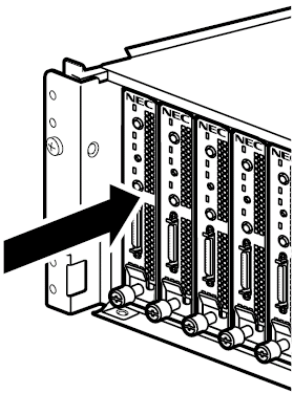
IMPORTANT: Do not hold the lock lever. Doing so may cause the Modular Server to fall down or be damaged due to deformed lock lever.

5. Hold the top and bottom of the frame of the modular server, and take the Modular Server out from the Module Enclosure.

6. Put the modular server on the clean, rigid and flat desk. Tighten the thumbscrew to lock the modular server.



7. If the Module Enclosure is used with the modular server being removed, install the blank cover to the empty slot.



This completes removal procedure.

MAKING CONNECTIONS

Connect peripheral devices to the modular server.

⚠ WARNING

Observe the following instructions to use the modular server safely. Failure to follow these instructions may result in death or serious personal injury. See pages 1-2 to 1-6 for details.

- Do not hold the power plug with a wet hand.
- Do not connect earth lines to any gas tubes.

⚠ CAUTION

Observe the following instructions to use the modular server safely. Failure to follow these instructions may cause a fire, personal injury, or property damage. See pages 1-2 to 1-6 for details.

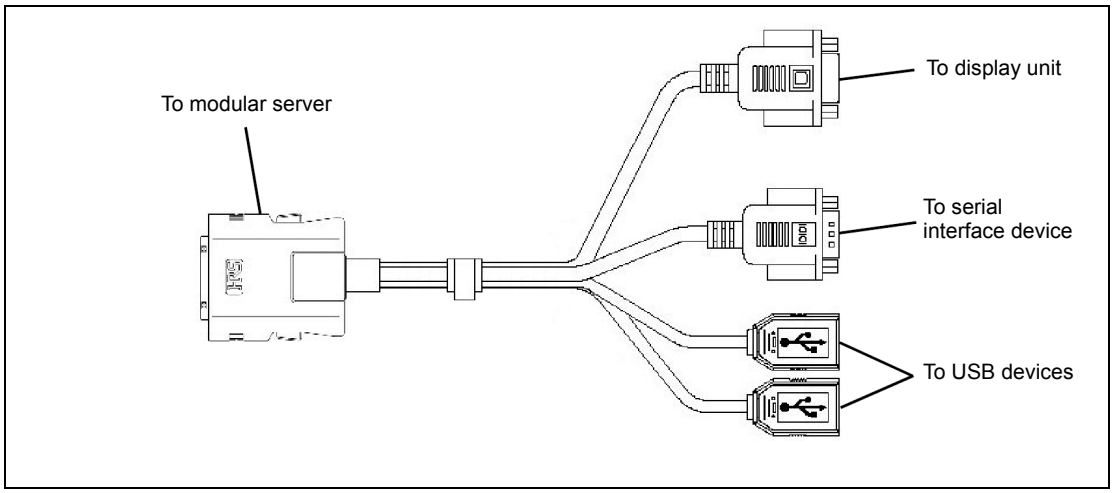
- Do not plug the power cord in to an improper power source.
- Do not connect the power cord to an outlet that has an illegal number of connections.
- Insert the power plug into the outlet as far as it goes.
- Use the authorized power cord only.
- Do not connect or disconnect any interface cable with the power cord of the modular server plugged to a power source.
- Do not use any unauthorized interface cable.

In the ordinary operation, any cables may not be connected to the connectors on the Modular Server except for the following cases:

- Installing OS
- Maintenance
- Updating BIOS and firmware

The SUV cable can only be used to connect with the modular server. The SUV cable is a standard accessory for the N8141-49F Module Enclosure (1way).

The SUV cable has the USB, serial interface, and monitor connectors at the other ends. Connect a proper device at each of the ends.



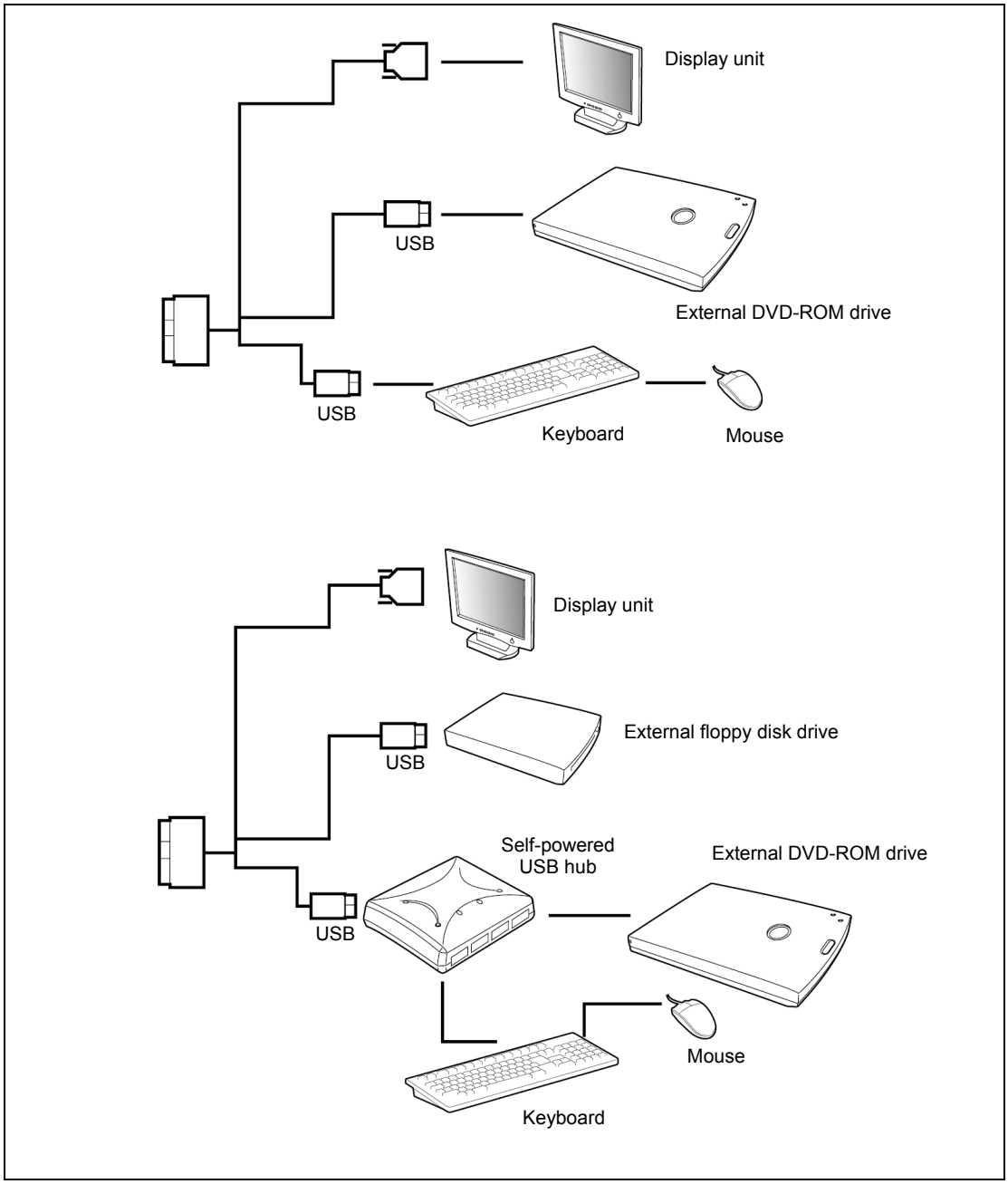
IMPORTANT:

- To connect a peripheral or interface cable provided by a vendor other than NEC (or third party) to the modular server, make sure that the device is available for the modular server. Some third party devices are not available for the modular server.
- The serial port connector cannot be directly connected with the leased line.
- Do not connect/disconnect the SUV cable or add/remove the USB device until the operating system starts running.
  To connect/disconnect the SUV cable or add/remove the USB device after OS startup, follow restrictions of operating system.
  If the device having serial interface is connected, first power off the modular server and destination device, and remove the power cord from the destination device before connecting/disconnecting SUV cable or serial cable. Failure to follow it may cause the devices to be defected due to the potential difference between them.
- If you are going to install an OS in the Modular Server, use the SUV cable. See the next page for connection.

USB Connection by SUV Cable

Connect the floppy disk drive, DVD-ROM drive, keyboard, and mouse according to the figure shown below.

The USB hub should have the self-power specification if it is used.



Network

The modular server is connected with network via the Module Enclosure. Refer to the User's Guide of the Module Enclosure for details.

Chapter 4

Configuring Your Modular Server

This chapter describes Basic Input Output System (BIOS) configuration.

When you install the modular server for the first time or install/remove optional devices, thoroughly read this chapter for better understanding and correct setups.

SYSTEM BIOS ~ SETUP ~

The SETUP utility is provided to make basic hardware configuration for the modular server. This utility is pre-installed in the flash memory of the modular server and ready to run.

The modular server is configured with the correct parameters using the SETUP utility and shipped in the best conditions. Thus, you don't need to use the SETUP utility in most cases. However, you might wish to use the SETUP utility in the cases described below.

IMPORTANT:

- The SETUP utility is intended for system administrator use only.
- The SETUP utility allows you to set a password. The modular server is provided with two levels of password: Supervisor and User. With the Supervisor password, you can view and change all system parameters of the SETUP utility. With the User password, system parameters available for viewing and changing are limited.
- Do not set any password before installing the OS.
- The modular server contains the latest version of the SETUP utility. Dialog boxes appear on your SETUP utility, thus, may differ from descriptions in this User's Guide. If you find anything unclear, see the online help or ask your service representative.

Starting SETUP Utility

Powering on the modular server starts POST (Power On Self-Test) and displays its check results. If the NEC logo is displayed, press **Esc**.

After a while, the following message appears at bottom left on the screen. The message depends on the status of your modular server.

Pattern 1:

```
Press <F2> to enter SETUP
```

Pattern 2:

```
Press <F2> to enter SETUP or <F12> to Network
```

Pattern 3:

```
Press <F1> to resume, <F2> to enter Setup, <F12> to Network
```

* The message depending on the status of modular server.

Press **F2** to start the SETUP utility and display its Main menu.

If you have set a password with the SETUP utility, the password entry screen appears. Enter the password.

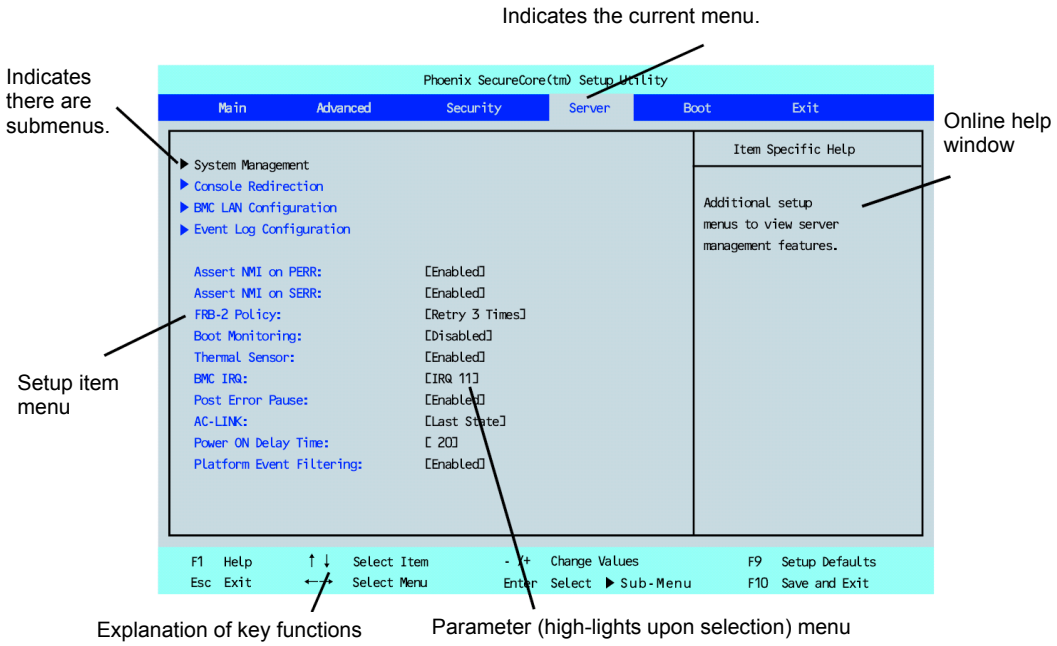
```
Enter password:[                ]
```

Password entry is accepted up to three times. If you fail to enter the correct password for three consecutive times, the modular server halts. (You can no longer proceed.) Power off the modular server.

NOTE: The modular server is provided with two levels of password: Supervisor and User. With the Supervisor password, you can view and change all system parameters. With the User password, system parameters available for viewing and changing are limited.

Description on On-Screen Items and Key Usage

Use the following keyboard keys to work with the SETUP utility. (Key functions are also listed at the bottom of the screen.)



Cursor (↑, ↓):	Selects an item on the screen. The highlighted item is currently selected.
Cursor (←, →):	Selects the Main, Advanced, Security, Server, Boot, or Exit menu.
– and **+**:	Changes the value (parameter) of the selected item. When a submenu option (an option preceded by "➤") is selected, these keys are disabled.
Enter:	Press **Enter** to select (determine) parameter values.
Esc:	Displays the previous screen.
F1:	Press **F1** when you need help on SETUP operations. The help screen for SETUP operations appears. Press **Esc** to return to the previous screen.
F9:	Sets the parameter of the currently displayed item back to the default (may differ from the factory set parameter).
F10:	Save and exit the SETUP utility.

Configuration Examples

The following describes examples of configuration required to use software-link features or for system operations.

Date and Time

To change system date or time

Select [Main] – [System Time] and [System Date].

Set the correct date and time before running the system.

Link with Management Software

To control power supply of the modular server with NEC ESMPRO Manager via the network

Select [Advanced] – [Advanced Chipset Control] – [Wake On LAN/PME] – [Enabled].

Boot

To change the boot order of devices connected to the modular server

Select [Boot] and specify the boot order.

To display POST check results

Select [Advanced] – [Boot-time Diagnostic Screen] – [Enabled].

You can also press **Esc** while the NEC logo is on the screen to display POST check results.

To use remote wake-up feature

- Via Modem:

  Select [Advanced] – [Advanced Chipset Control] – [Wake on Ring] – [Enabled]

- Via LAN:

  Select [Advanced] – [Advanced Chipset Control] – [Wake on LAN/PME] – [Enabled]

- Via RTC alarm:

  Select [Advanced] – [Advanced Chipset Control] – [Wake on RTC Alarm] – [Enabled]

To control from the HW console

Select [Server] – [Console Redirection] and set each item.

Memory

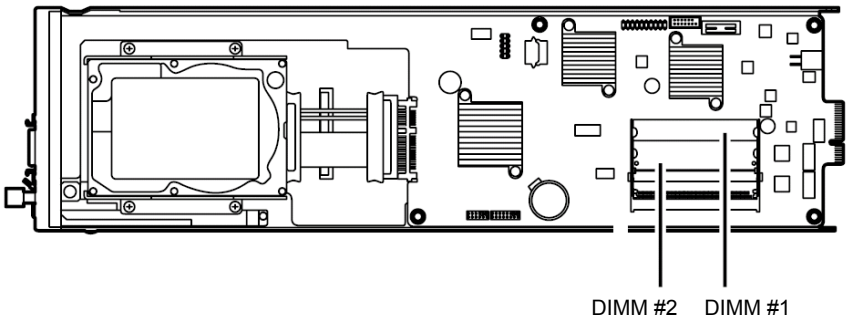
To check the installed memory (DIMM) status

Select [Advanced] – [Memory Configuration] – [DIMM# Status] and check the status indications.

To clear the memory (DIMM) error information

Select [Advanced] – [Memory Configuration] – [Memory Retest] – [Yes] and reboot the system.

The on-screen DIMM numbers and socket locations on the mother board are associated as shown in the figure below.



CPU

To check the installed CPU status

Select [Main] – [Processor Settings] and check the status indications.

Keyboard

To set Numlock feature

Select [Advanced] – [NumLock] – [On] / [Off] (default).

Security

To set passwords on the BIOS level

Select [Security] – [Set Supervisor Password] and enter a password.

Set Supervisor password first, then User password.

To enable/disable the POWER/SLEEP switch feature

Select [Security] – [Power Switch Inhibit] – [Disabled]
(POWER/SLEEP switch is enabled).

Select [Security] – [Power Switch Inhibit] – [Enabled]
(POWER/SLEEP switch is disabled).

To set this item, the Supervisor and User passwords must have been set.

IMPORTANT: Even if [Power Switch Inhibit] is set to [Enabled], the forced shutdown (see Chapter 7) is still available.

External Devices

To set up external devices

Select [Advanced] – [Peripheral Configuration] and set up each device.

Internal Devices

To set up LAN controller of the modular server

Select [Advanced] – [PCI Configuration] – [Onboard NIC] and set up each device.

To clear the hardware configuration data (after installing/removing internal devices)

Select [Advanced] – [Reset Configuration Data] – [Yes] and reboot the system.

Saving the Configuration Data

To save the BIOS configuration data

Select [Exit] – [Exit Saving Changes] or [Save Changes].

To discard changes to the BIOS configuration data

Select [Exit] – [Exit Discarding Changes] or [Discard Changes].

To resume the default BIOS configuration data (may differ from factory-set value)

Select [Exit] – [Load Setup Defaults].

To save the current settings as user-defined configuration

Select [Exit] – [Save Custom Defaults].

To load the user-defined configuration data

Select [Exit] – [Load Custom Defaults].

Menu and Parameter Descriptions

The SETUP utility has the following six major menus:

- Main
- Advanced
- Security
- Server
- Boot
- Exit

To set minute functions, select a submenu from the above menus. The following describes available functions and parameters, as well as the factory-set, for each menu.

Main

Option	Parameter	Description	Your Setting
System Time	HH:MM:SS	Shows the current time.	
System Date	MM/DD/YYYY	Shows the current date.	
Hard Disk Pre-Delay	Disabled 3 seconds [6 seconds] 9 seconds 12 seconds 15 seconds 21 seconds 30 seconds	When accessing the SATA hard disk drive for the first time during POST, the system waits for the specified time until the hard disk drive becomes ready.	
SATA Port 0	Information	Shows the information on the device connected to each channel, on the submenu. The settings of some items may be changed. However, leave the items as factory-set.	
Processor Settings	N/A		
Language	[English] Français Deutsch Español Italiano	Select which language BIOS SETUP displays.	

[ ]: Factory-set

IMPORTANT: Check and adjust the system clock before the operation if any of the following conditions is applicable.

- After carriage of device
- After storage of device
- After the device is entered into the pause state under the environmental condition enduring device operation (temperature: 10°C - 40°C, humidity: 20% - 80%)

Check the system clock at the rough rate of once per month. When the system clock is installed in a system requiring high time precision, it is recommended to use a time server (NTP server).

If the system clock is remarkably delayed or advanced as the passage of time in spite of adjustment, contact your service representative for maintenance.

Processor Settings Submenu

Option	Parameter	Description	Your Setting
Processor Speed Setting	–	Indicates the clock speed of the processor.	
Processor CPUID	–	Indicates the processor ID.	
Processor L2 Cache	–	Indicates the L2 cache of processor. (View only)	
HyperThreading Technology	Disabled [Enabled]	With this feature, a single physical processor can work as two logical processors. This menu appears only when the processor supports this feature.	
Execute Disable Bit	Disabled [Enabled]	Specify whether HW DEP feature on OS is enabled or disabled. This menu appears only when the processor supports this feature.	
Intel SpeedStep(R) Technology	Disabled [Enabled]	Specify whether Enhanced Intel SpeedStep(R) Technology feature is enabled or disabled. If the CPU does not support this feature, this item is not visible.	
C1 Enhanced Mode	Disabled [Enabled]	Specify whether the Enhanced Halt State (C1E) feature of Intel processor is enabled or disabled. This menu appears only when the processor supports this feature.	

[ ]: Factory-set

Advanced

Option	Parameter	Description	Your Setting
Memory Configuration	N/A		
PCI Configuration	N/A		
Peripheral Configuration	N/A		
Advanced Chipset Screen	N/A		
Boot-time Diagnostic Screen	[Disabled] Enabled	Specify whether the self-diagnosis (POST) running screen is displayed or not on booting. If this item is set to "Disabled", the "NEC" logo appears during POST. (Pressing **Esc** causes the screen to be switched to the POST running screen. If [Serial Port B] is specified for [Server] - [Console Redirection] - [BIOS Redirection Port], the POST running screen is automatically displayed.	
Reset Configuration Data	[No] Yes	Set "Yes" to clear the configuration data (system information stored by POST). The parameter is changed to "No" after the system is booted.	
NumLock	On [Off]	Specify whether the Numlock feature is enabled or disabled on booting.	

[ ]: Factory-set

Memory Configuration Submenu

Option	Parameter	Description	Your Setting
Installed memory	–	Indicates the total capacity of installed memory. (View only)	
Available under 4GB	–	Indicates the capacity of memory available in the area smaller than 4GB. (View only)	
DIMM 1 Status	Normal Error	Indicates the current memory status.	
DIMM 2 Status	Normal [Not Installed] Error	Indicates the current memory status. "Normal" indicates that the memory device operates normally. "Error" indicates that the memory device is defected. (View only) "Not Installed" indicates that no memory device is installed. See Chapter 8 for details of DIMM.	
Memory Retest	[No] Yes	Set to "Yes" to clear the error information on the memory, and perform retest. The parameter is changed to "No" after the system is booted.	
Extended RAM Step	1MB 1KB Every Location [Disabled]	1MB: The memory test is performed in the unit of 1MB. 1KB: The memory test is performed in the unit of 1KB. Every-location: Every memory device is tested. Disabled: Only memory initialization is performed.	

[ ]: Factory-set

PCI Configuration Submenu

Option	Parameter	Description	Your Setting
Onboard NIC	N/A		

Onboard NIC

Option	Parameter	Description	Your Setting
LAN Controller 1	[Enabled] Disabled	Specify whether the LAN controller 1 is enabled or disabled.	
LAN#1 Option ROM Scan	[Enabled] Disabled	Specify whether the extraction of BIOS of LAN controller 1 is enabled or disabled.	
PXE/iSCSI Select	[PXE] iSCSI	Specify the ROM to be extracted for LAN controller 1.	
LAN Controller 2	[Enabled] Disabled	Specify whether the LAN controller 2 is enabled or disabled.	
LAN#2 Option ROM Scan	[Enabled] Disabled	Specify whether the extraction of BIOS of LAN controller 2 is enabled or disabled.	
PXE/iSCSI Select	[PXE] iSCSI	Specify the ROM to be extracted for LAN controller 2.	

[ ]: Factory-set

IMPORTANT: Specifying [iSCSI] for [PXE/iSCSI Select] of LAN Controller 1 and [PXE] for [PXE/iSCSI Select] of LAN Controller 2 causes the shortage of area to expand the ROM. To avoid an incorrect system operation, do not set these parameters in such a way.

Peripheral Configuration Submenu

IMPORTANT: Make sure to avoid any conflict in the interrupt requests or the base I/O addresses. If an assigned value is already used by another resource, it appears in yellow. Any yellow value must be re-assigned.

Option	Parameter	Description	Your Setting
Serial Port B	Disabled [Enabled]	Specify whether serial port B is enabled or disabled.	
Base I/O Address	[3F8h] 2F8h 3E8h 2E8h	Specify the base I/O address for serial port B.	
Interrupt	IRQ 3 [IRQ 4]	Specify the interrupt request (IRQ) for serial port B.	
USB 2.0 Controller	Disabled [Enabled]	Specify whether the USB 2.0 controller is enabled or disabled.	
Serial ATA	Disabled [Enabled]	Specify whether the onboard SATA controller is enabled or disabled.	
SATA AHCI	[Disabled]	The AHCI (Advanced Host Controller Interface) is always disabled on this system. This option is view only. This menu appears only when [Serial ATA] is enabled.	

[ ]: Factory-set

Advanced Chipset Control Submenu

Option	Parameter	Description	Your Setting
Multimedia Timer	Disabled [Enabled]	Specify whether the timer supporting a multimedia is enabled or disabled.	
Wake On LAN/PME	Disabled [Enabled]	Specify whether the remote power-on feature through the device connected to the standard network card is enabled or disabled. To use Wake On LAN feature, set the link speed and duplex to [Auto].	
Wake On Ring	[Disabled] Enabled	Specify whether the remote power-on feature through a serial port (modem) is enabled or disabled.	
Wake On RTC Alarm	[Disabled] Enabled	Specify whether the remote power-on feature by using RTC (Real Time Clock) alarm is enabled or disabled.	

[ ]: Factory-set

Security

Select "Set Supervisor Password" or "Set User Password" and press **Enter** to display the pop-up screen. Note that User password setup is not available before Supervisor password setup.

Set a password on the pop-up screen. Enter a password of up to seven alphanumeric characters and symbols from the keyboard.

IMPORTANT:

- User password setup is not available before Supervisor password setup.
- Do not set any password before installing the OS.
- If you have forgotten your password, ask your service representative.

Option	Parameter	Description	Your Setting
User Password Is	[Clear] Set	Indicates the user password setting status (view only).	
Supervisor Password Is	[Clear] Set	Indicates the supervisor password setting status (view only).	
Set User Password	Up to 7 alphanumeric characters *1	Press **Enter** to display the user password entry screen. With a user password, accessible SETUP menus are restricted. This option is available only when you log into the SETUP utility with the password "Supervisor".	
Set Supervisor Password	Up to 7 alphanumeric characters *1	Press **Enter** to display the supervisor password entry screen. With the supervisor password, all SETUP menus are available for access. This option is available only when you log into the SETUP utility with the password "Supervisor".	
Password on boot	[Disabled] Enabled	Specify whether to request a user password entry at boot-up. User password must be set beforehand. If the supervisor password is set and this option is disabled, BIOS determines that a user is booting.	
Power Switch Inhibit	[Disabled] Enabled	Specify whether the POWER/SLEEP switch of the modular server is enabled or disabled. If Enabled, the POWER/SLEEP switch cannot be used to power off the modular server. (The forced shutdown, by pressing the POWER/SLEEP switch for 4 seconds or longer, is available.)	
Disable USB Ports	[Disabled] Front Internal Front Internal	Specify whether the USB ports are enabled or disabled.	

[ ]: Factory-set

*1 One of the following messages appears when you press **Enter**.

In case of no password setting

```
Set Supervisor Password

Enter New Password       [          ]
Confirm New Password     [          ]
```

In case of any password stored

```
Set Supervisor Password

Enter Current Password   [          ]
Enter New Password       [          ]
Confirm New Password     [          ]
```

If the input of "Enter New Password" is different from the input of "Confirm New Password", the following message is displayed.

```
Setup Warning

Passwords do not match
Re-enter password
[Continue]
```

If the input of "Current Password" is different from the stored password, the following message is displayed.

```
Set Supervisor Password

Setup Warning
Invalid Password
[Continue]
```

If the input of "Current Password" failed three times, the following message is displayed.

```
System Disabled
```

If the Password setting succeeded, the following message is displayed.

```
Setup Notice

Changes have been saved
[Continue]
```

Server

The items which can be set on the Server menu and their functions are described below.

For setting of [System Management], [Console Redirection], [BMC LAN Configuration], and [Event Log Configuration], first select the item and press **Enter** to display the submenu.

Option	Parameter	Description	Your Setting
System Management	N/A		
Console Redirection	N/A		
BMC LAN Configuration	N/A		
Event Log Configuration	N/A		
Assert NMI on PERR	Disabled [Enabled]	When enabled, PCI bus parity error (PERR) can be detected and notified as NMI at occurrence of an error.	
Assert NMI on SERR	Disabled [Enabled]	When enabled, PCI bus system error (SERR) can be detected and notified as NMI at occurrence of an error.	
FRB-2 Policy	Disable FRB2 Timer [Retry 3 Times] Always Reset	Set the policy to be applied to FRB level 2 timer at occurrence of an error..	
Boot Monitoring	[Disabled] 5 minutes 10 minutes 15 minutes 20 minutes 25 minutes 30 minutes 35 minutes 40 minutes 45 minutes 50 minutes 55 minutes 60 minutes	Specify whether the boot monitoring feature is enabled or disabled and the timer value on booting. Set this item to "Disabled" if ARCServe uses the Disaster Recovery Option.	
Boot Monitoring Policy	[Retry 3 times] Always Reset	This item indicates the processing at the occurrence of timeout during boot monitoring. Retry 3 times: The system is reset after the occurrence of timeout and OS boot is retried up to three times. Always Reset: The system is reset after the occurrence of timeout and OS boot is retried repeatedly.	

Option	Parameter	Description	Your Setting
Thermal Sensor	Disabled [Enabled]	Specify whether the temperature sensor monitoring feature is enabled or disabled. If a thermal error is detected with this item being set to "Enabled", the system stops at the end of POST.	
BMC IRQ	Disabled [IRQ 11]	Specify whether to assign IRQ for BMC (Baseboard Management Controller).	
Post Error Pause	Disabled [Enabled]	Specify whether POST is aborted once at the end of POST if an error occurs during the execution of POST.	
AC-LINK	Shamrock-G Stay Off [Last State] Power On	Specify the AC-LINK feature. Shows the system status when the AC power is supplied again to the modular server. See the table below.	
Power ON Delay Time	Default [t1] (s) [t1-255] (s)	Specify the power-on delay time between 1 and 255 seconds. This option is available only when "Power On" or "Last State" is specified for AC LINK.	
Platform Event Filtering	Disabled [Enabled]	Specify whether the Platform Event Filtering feature of the Baseboard Management Controller (BMC) is enabled or disabled.	

[ ]: Factory-set

The table below shows the operation when the AC power to the modular server is turn off once and then on again, depending on the setting of "AC-LINK".

System status before AC power off	Setting of AC-LINK		
	Stay Off	Last State	Power On
Operating	Off	On	On
Aborting (DC power being off also)	Off	Off	On
Forced shutdown*	Off	Off	On

* Press the POWER/SLEEP switch continuously for four seconds or longer. This forcibly turns off the power.

System Management Submenu

Option	Parameter	Description	Your Setting
BIOS Revision	–	Indicates the version of BIOS. (View only)	
Board Part Number	–	Indicates the part number of the mother board. (View only)	
Board Serial Number	–	Indicates the serial number of the mother board. (View only)	
System Part Number	–	Indicates the part number of the modular server. (View only)	
System Serial Number	–	Indicates the serial number of the modular server. (View only)	
Chassis Part Number	–	Indicates the part number of the chassis. (View only)	
Chassis Serial Number	–	Indicates the serial number of the chassis. (View only)	
Onboard LAN1 MAC Address	–	Indicates the MAC address for LAN port 1. (View only)	
Onboard LAN2 MAC Address	–	Indicates the MAC address for LAN port 2. (View only)	
Management LAN MAC Address	–	Indicates the MAC address for management LAN port. (View only)	
BMC Device ID	–	Indicates the device ID of BMC (Baseboard Management Controller.) (View only)	
BMC Device Revision	–	Indicates the firmware revision of BMC. (View only)	
BMC Firmware Revision	–	Indicates the firmware revision of BMC. (View only)	
SDR Revision	–	Indicates the revision of SDR (Sensor Data Record). (View only)	
PIA Revision	–	Indicates the revision of PIA (Platform Information Area). (View only)	

[ ]: Factory-set

Console Redirection Submenu

Option	Parameter	Description	Your Setting
BIOS Redirection Port	Shamrock-G [Disabled] Serial Port B	Specify the serial port to which a hardware console is connected.	
Baud Rate	9600 [19.2k] 38.4K 57.6k 115.2k	Specify the baud rate for the interface with hardware consoles.	
Flow Control	None XON/XOFF [CTS/RTS] CTS/RTS+CD	Specify the flow control method.	
Terminal Type	PC ANSI [VT100+] VT-UTF8	Specify the type of remote console.	
Continue Redirection after POST	Disabled [Enabled]	Specify whether the console output after completion of POST is enabled or disabled.	
Remote Console Reset	[Disabled] Enabled	Specify whether to enable or disable resetting by Escape command (Esc R) sent from the remote console.	

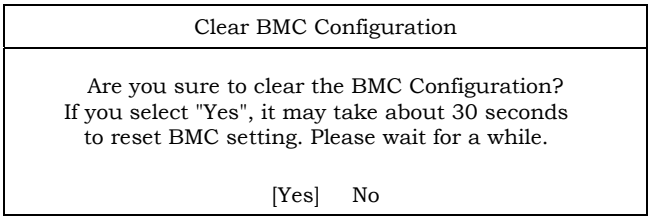
[ ]: Factory-set

BMC LAN Configuration Submenu

Option	Parameter	Description	Your Setting
Shared BMC LAN	[Disabled] Enabled	Set to [Disabled] to use the management LAN port for management LAN. When set to [Enabled], the LAN port 1 can be used for management LAN while sharing with the standard LAN. When set to [Enabled], the management LAN port is disabled.	
LAN Connection Type	[Auto Negotiation] 100Mbps Full Duplex 100Mbps Half Duplex 10Mbps Full Duplex 10Mbps Half Duplex	Specify the connection type for management LAN port.	
IP Address	Variable	Specify an IP address for management LAN.	
Subnet Mask	Variable	Specify a subnet mask for management LAN.	
Default Gateway	Variable	Specify a default gateway for management LAN.	
DHCP	[Disabled] Enabled	Set to [Enabled] to obtain an IP address from DHCP server automatically. If you intend to specify an IP address manually, set to [Disabled].	
Web Interface			
HTTP	Disabled [Enabled]	Set to [Enabled] to use HTTP communication for Web interface.	
HTTP Port Number	Variable	Specify the TCP port number which the management LAN uses for HTTP communication.	
HTTPS	Disabled [Enabled]	Set to [Enabled] to use HTTPS communication for Web interface.	
HTTPS Port Number	Variable	Specify the TCP port number which the management LAN uses for HTTPS communication.	
Command Line Interface			
Telnet	Disabled [Enabled]	Set to [Enabled] to use Telnet communication as a command line interface.	
Telnet Port Number	Variable	Specify the TCP port number to be used for Telnet communication.	
SSH	Disabled [Enabled]	Set to [Enabled] to use SSH communication as a command line interface.	
SSH Port Number	Variable	Specify the TCP port number to be used for SSH communication.	
Clear BMC Configuration	[Enter] *	Press **Enter** and select "Yes" to initialize the BMC configuration.	

[ ]: Factory-set

* If you press **Enter** on [Clear BMC Configuration], the following message appears.


Clear BMC Configuration
Are you sure to clear the BMC Configuration?
If you select "Yes", it may take about 30 seconds
to reset BMC setting. Please wait for a while.
[Yes] No

IMPORTANT: Notes on performing Clear BMC Configuration

- Executing "Load Setup Defaults" in BIOS SETUP utility does not restore the default value for settings related to management LAN of BMC. To restore the default value, you need to execute Clear BMC Configuration.
- It takes about several tens seconds until initialization completes after execution of Clear BMC Configuration.

Event Log Configuration Submenu

Option	Parameter	Description	Your Setting
System Event Logs	N/A		
Auto Clear Event Logs	[Disabled] Enabled	If set to "Enabled", logs are automatically cleared when the error log area is fulfilled.	
Clear All Event Logs	[Enter] *	Press **Enter** to clear the system event log.	

[ ]: Factory-set

* If you press **Enter** on [Clear All Event Logs], the following message appears.

Clear System Event Log
Are you sure to clear the System Event Log? [Yes] No

System Event Log

Use ↑, ↓, **+**, **–**, **Home**, or **End** to view the newer or older system event logs recorded.

Boot

If you move the cursor to the position of "Boot", the Boot menu appears, which is used to set the boot priority.

1. When BIOS detects a bootable device, it displays the information on the device in the relevant indication.

   To boot the system from a desired device, the device must be registered as a boot device. (Up to eight boot devices can be registered.)

2. Pressing **X** after selecting a device allows the selected device to be registered as a boot device or deleted from the registration.

   With eight boot devices being registered, any other device cannot be registered as a boot device even if you press **X**. To register a device as a boot device newly, first delete the registration of a device registered as a boot device but not booted any more.

3. You can change the boot priority (first to eighth) of each device by using ↑, ↓, **+** and/or **–**.

   To change the priority of a device, move the cursor to the device by using the ↑ or ↓**,** and press **+** or **–**.

Exit

The following describes each option on the Exit menu:

Exit Saving Changes

Select this item to quit SETUP after saving the newly selected information in CMOS (non-volatile memory). The selection of "Exit Saving Changes" causes the confirmation screen to appear.

If you select "Yes", SETUP is terminated with the newly selected information saved in CMOS (non-volatile memory). Then the modular server automatically reboots the system.

Exit Discarding Changes

Select this item to quit SETUP without saving the newly selected information in CMOS (non-volatile memory).

Selecting "No" allows SETUP to be terminated without storage of the modified information. If you select "Yes", SETUP is terminated with the modified information saved in CMOS. Then the modular server automatically reboots the system.

Load Setup Defaults

Select this item to return all the values of SETUP to the default values. Selecting "Load Setup Defaults" causes the confirmation screen to appear.

Select "Yes" to return the values to the default values. Select "No" to go back to the Exit menu screen.

> **IMPORTANT:** The factory-set values of SETUP may be different from their default values depending on the model of the modular server. It is necessary to set the values meeting the environment in which the modular server is used referring to the models.

Load Custom Defaults

Select this item and press **Enter** to load the stored custom default values. This menu does not appear when no custom default values are stored.

Save Custom Defaults

Select this item and press **Enter** to save parameters set currently as the custom default values. After the storage, the Load Custom Defaults menu appears.

Discard Changes

Select this item to return the values modified currently to the previous values before saving the values to CMOS. Selecting "Discard Changes" causes the confirmation screen to appear.

Select "Yes" to discard the newly selected information and return to the previous values.

Save Changes

Select this item to save the newly selected information to CMOS (non-volatile memory) without the termination of SETUP. Selecting "Save Changes" causes the confirmation screen to appear.

Select "Yes" to save the newly selected information to CMOS (non-volatile memory)

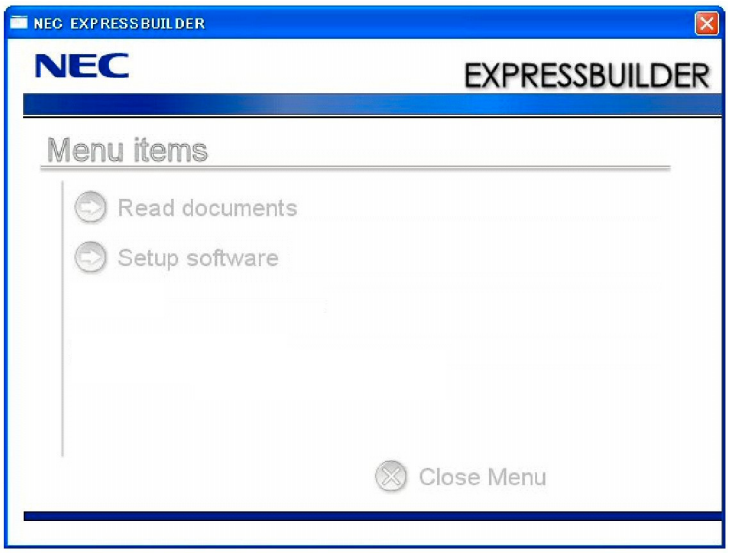
Chapter 5

Installing and Using Utilities

This section describes how to use the NEC EXPRESSBUILDER DVD that comes with your Module Enclosure (1way).

Autorun Menu

When the NEC EXPRESSBUILDER DVD is inserted into the optical disk drive, Windows automatically launches the menu as shown below.



NOTE: If the menu does not appear, select "My computer" by using the Explorer, and double-click the icon of the optical disk drive that contains the NEC EXPRESSBUILDER DVD.

This menu is used to read the User's Guide or the other documents, and install the management software.

NOTE: Some documents are provided in PDF format. Use the Adobe Reader to view or print these documents.

Click on the menu items, or click the right mouse button and select a short-cut menu.

Some menu items are grayed-out when the logon user does not have the authority of the administrator or the menu item is not available for your system.

IMPORTANT: Be sure to close the online document and quit the menu before removing the DVD from the optical disk drive.

NEC ESMPRO Manager

Use the NEC ESMPRO Manager to monitor and manage the modular server from the management PC via network.

NOTE: For detailed explanations on NEC ESMPRO, refer to the online document in the NEC EXPRESSBUILDER DVD that comes with your Module Enclosure.

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Chapter 6

Maintenance

This chapter describes the daily maintenance of the modular server and precautions when relocating or storing the modular server.

MAKING BACKUP COPIES

NEC recommends you make backup copies of your valuable data stored in hard disk drives of the modular server on a regular basis. For backup storage devices suitable for the modular server and backup tools, consult with your service representative.

When you have changed the hardware configuration or BIOS configuration, select "System Information Management" and then "Save" of the Off-line Maintenance Utility to make a backup copy of the system information.

CLEANING

Clean the modular server on a regular basis to keep it in a good shape.

⚠ WARNING

Observe the following instructions to use the equipment safely. Failure to follow these instructions may result in death or serious personal injury. See pages 1-2 to 1-6 for details.

- Do not disassemble, repair, or alter the modular server.
- Disconnect the power plug before cleaning the modular server.

Cleaning the Modular Server

For daily cleaning, wipe the external surfaces of the modular server with a dry soft cloth.

IMPORTANT:

- To avoid altering the material and color of the modular server, do not use volatile solvents such as thinner and benzene to clean the modular server.
- The power receptacle, the cables, the devices installed on Module Enclosure, and the inside of the Module Enclosure must be kept dry. Do not moisten them with water.

Cleaning the Keyboard

Make sure that the modular server and peripheral devices are all off-powered (the POWER/SLEEP lamp goes off), and then wipe the keyboard surface with a dry cloth.

Cleaning CD/DVD-ROM

A dusty CD/DVD-ROM or dust-accumulated tray causes the device to fail to read data correctly.

Follow the procedure below to clean the tray and CD/DVD-ROM regularly:

1. Make sure that the equipment is powered (the POWER/SLEEP lamp is lit).
2. Press the Eject button on the front of the optical disk drive.
   The tray comes out.
3. Hold the CD/DVD-ROM lightly and take it out from the tray.

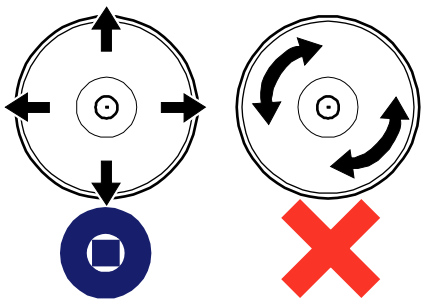
> **NOTE:** Do not touch the signal side of the CD/DVD-ROM with your hand.

4. Wipe the tray with a dry soft cloth.

> **IMPORTANT:** Do not wipe the lens of the optical disk drive. Doing so may damage the lens and may cause a malfunction of the drive.

5. Gently push on the tray front to close the tray.
6. Wipe the signal side of the CD/DVD-ROM with a dry soft cloth.

> **IMPORTANT:** Wipe CD/DVD-ROMs from the center to the outside. Use only CD/DVD-ROM cleaner if necessary. Cleaning a CD/DVD-ROM with record spray/cleaner, benzene, or thinner causes damage to the CD/DVD-ROM contents. At worst, inserting the CD/DVD-ROM into the optical disk drive may cause failure of the equipment.



SYSTEM DIAGNOSTICS

The System Diagnostics runs several tests on the modular server.

Select [Tool menu] - [Test and diagnostics] in the NEC EXPRESSBUILDER to diagnose the system.

Test Items

The following items are tested in system diagnostics.

- Memory
- CPU cache memory
- Hard disk drive used as a system

> **IMPORTANT:** When executing the system diagnostics, make sure to disconnect the LAN cable. Executing the system diagnostics with the LAN cable connected, the network may be influenced.

> **NOTE:** On checking the hard disk drive, no data is written into the disk.

Startup and Exit of System Diagnostics

There are two ways to diagnose the modular server: to use the local console (SUV cable) of the modular server itself, and to use the management PC via serial port (remote console).

> **IMPORTANT:** Two methods of LAN and the serial port are mentioned in "MAINTENANCE TOOLS" in the way of communicating in remote console.
> Use the serial port to execute System Diagnostics with remote console. The LAN connection is not for System Diagnostics.

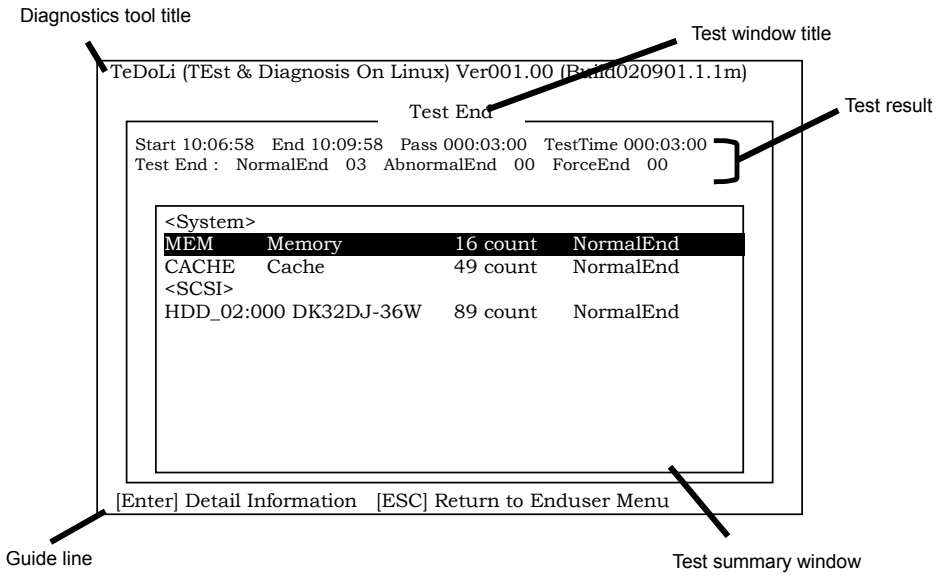
Procedures to start the diagnostics program are as follows:

1. Shutdown the system, and power off the modular server.
2. Power off the switch kit to which the target modular server is connected, or disable the LAN port on the switch kit to disconnect the target modular server from the system.
3. Power on the modular server.
4. Use the NEC EXPRESSBUILDER DVD to start the system.
5. Select [Tool menu (Normal mode)] when local console of the modular server is used for, or select [Tool menu (Redirection mode)] when remote console is used for.

> **NOTE:** If the system displays the [Language selection] menu, select [English].

6. Select [Test and diagnostics].

Select [End-User Mode] and the system diagnostics starts. The diagnostics will be completed in approximately three minutes. When the diagnostics is completed, the screen of the display changes as shown below:


Diagnostics tool title
Test window title
TeDoLi (TEst & Diagnosis On Linux) Ver001.00 (Build020901.1.1m)
Test End
Test result
Start 10:06:58 End 10:09:58 Pass 000:03:00 TestTime 000:03:00
Test End : NormalEnd 03 AbnormalEnd 00 ForceEnd 00
<System>
MEM Memory 16 count NormalEnd
CACHE Cache 49 count NormalEnd
<SCSI>
HDD_02:000 DK32DJ-36W 89 count NormalEnd
[Enter] Detail Information [ESC] Return to Enduser Menu
Guide line
Test summary window

– Diagnostics tool title

  Shows the name and version of the diagnostic tool.

– Test window title

  Shows the progress of the diagnostics. "Test End" is displayed when the diagnostics completes.

– Test result

  Shows the start, end, and elapsed time and completion status of the diagnostics.

– Guide line

  Shows the details of the keys to operate window.

– Test summary window

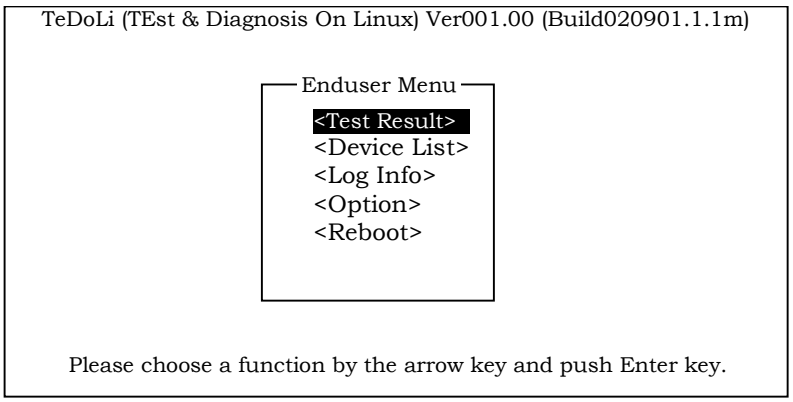
  Shows the results of each test that executed the diagnostics. Move the cursor and press the **Enter** key on the cursor line to display the details of the test.

When an error is detected by the system diagnostics, the relevant test result in the Test summary window is highlighted in red, and "Abnormal End" is displayed in the result on the right side.

Move the cursor to the test that detected the error, and press the **Enter** key. Record the error message that has been output to the Detail Information screen and contact your service representative.

7. Follow the guide line shown at the bottom of the screen, and press the **Esc** key.

   The [Enduser Menu] below is displayed.



<Test Result> Shows the diagnostics completion screen of the above diagnostics.

<Device List> Shows a list of connected devices.

<Log Info> Shows the log information of the diagnostics. Log information can be saved.
To save it, connect a FAT formatted removable media, and select <Save(F)>.

<Option> Optional features can be used from this menu.

<Reboot> Reboots the system.

8. Select <Reboot> in the [Enduser Menu] above.

   The modular server restarts and the system is started from the NEC EXPRESSBUILDER.

9. Exit the NEC EXPRESSBUILDER, and remove the DVD from the optical disk drive.

10. Power off the modular server.

11. Reconnect LAN between the switch kit and the modular server that have been disconnected in Step 2.

This completes the system diagnostics.

RELOCATING/STORING THE SERVER

Follow the procedure below to relocate or store the modular server, hard disk drive, and Module Enclosure:

⚠ WARNING

Observe the following instructions to use the equipment safely. Failure to follow these instructions may result in death or serious personal injury. See pages 1-2 to 1-6 for details.

- Do not disassemble, repair, or alter the equipment.
- Do not remove the lithium battery.
- Disconnect the power plug before working with the equipment.

⚠ CAUTION

Observe the following instructions to use the equipment safely. Failure to follow these instructions may cause a fire, personal injury, or property damage. See pages 1-2 to 1-6 for details.

- Do not install the equipment in any place other than specified.
- Do not connect/disconnect any interface cable with the power cord of the server plugged to a power source.

IMPORTANT:

- If the equipment needs to be relocated/stored due to a change in the floor layout to a great extent, contact your service representative.
- Be sure to make a backup copy of your valuable data in the hard disk drive, if any.
- Make sure not to apply a shock to hard disk drive if installed on modular server.
- Store the equipment under the storage condition (temperature: –10 to 55°C, humidity: 20 to 80%, without condensation) to allow internal devices and the equipment to operate correctly in the next operation.

When relocating or storing the Module Enclosure with the modular servers being installed in it

Refer to the User's Guide of Module Enclosure for how to relocate or store the modular server being installed in Module Enclosure.

When relocating or storing the modular server apart from the Module Enclosure

Remove the device from the Module Enclosure according to the procedure described in Chapter 3. Package the device in the bag or carton box used at the shipment before relocating or storage.

IMPORTANT: If you use the equipment after transported or relocated, check the system timer and adjust it if necessary. If the system timer advances or delays remarkably with the passage of time, contact your service representative to repair it.
The modular server or internal option device may be dewed if it is brought to a warm place from a cold place suddenly. Using a modular server or an internal device with dew attached may cause malfunction or failure.
Make sure to adapt them to the operating environment before using them.

When relocating or storing the Module Enclosure

Refer to the User's Guide of Module Enclosure for details.

Chapter 7

Troubleshooting

If your modular server does not operate as expected, read this chapter before assuming a failure.

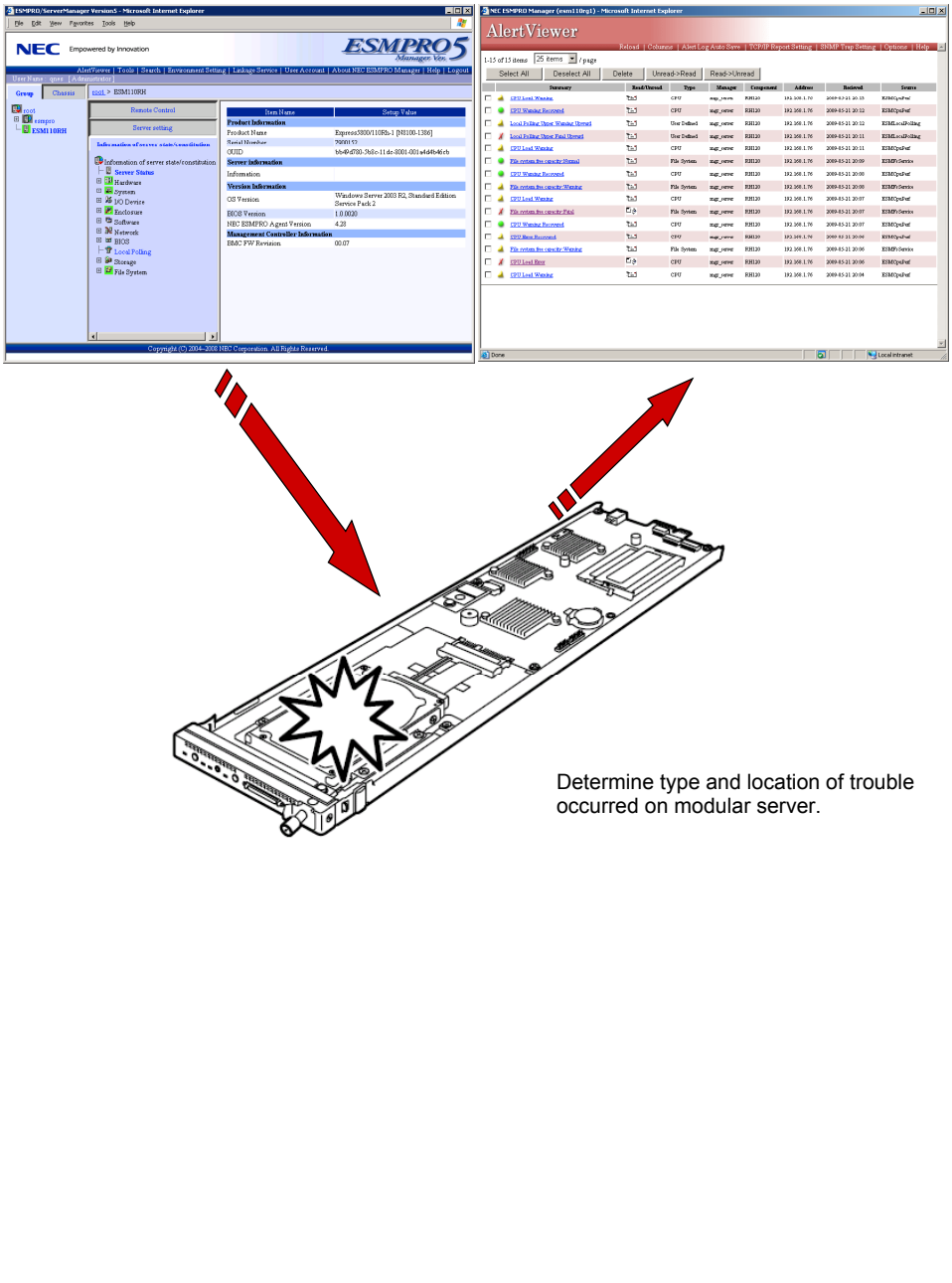
> **NOTE:** For provision against an unexpected failure, it is recommended to install the maintenance utility, NEC ESMPRO, to your computer.

SYSTEM VIEWERS

Monitor the occurrence of fault by NEC ESMPRO during the system operation.

Especially take note on whether any alert is reported to NEC ESMPRO Manager on the management PC. Check whether any alert is reported on the Operation Window, [Information of server state/constitution] of NEC ESMPRO Manager, or AlertViewer of NEC ESMPRO Manager.

[Example]



LAMPS

The modular server includes lamps to indicate the modular server states by a variety of colors and display patterns on the front panel.

See "Indications of STATUS lamp, their meanings and actions against the indications" in Chapter 2 for details.

ERROR MESSAGES

If an error occurs in the modular server, an error message appears.

POST Error Messages

Powering on the modular server automatically starts the self-diagnostic program, POST (Power On Self-Test). When the POST detects any error, it displays an error message and its measure on the display unit.

Follow the table below to troubleshoot such errors.

IMPORTANT: Take a note on the messages and beep patterns displayed before consulting with your service representative. Alarm messages are useful information for maintenance.

NOTES:

- The POST error messages listed below are for modular server itself.
- The POST error message contains POST error code. For example, "8100" represents the error code in the message [8100: Memory Error detected in DIMM #1].

On-screen error message	Recommended action
0200 Failure Fixed Disk	Contact your service representative.
0230 System RAM Failed 0231 Shadow RAM Failed 0232 Extend RAM Failed	1. Take one of the following measures to reboot (reset) the modular server. * Issue an OS command. * Press **Ctrl** + **Alt** + **Del**. * Issue a command from Web browser of EXPRESSSCOPE Engine or NEC ESMPRO Manager. 2. Take one of the following measures to power off the modular server and then on. * Power off the modular server from OS, then press the POWER/SLEEP switch to power on. * Press the POWER/SLEEP switch to power off the modular server, then press it again to power on. * Issue a command from Web browser of EXPRESSSCOPE Engine or NEC ESMPRO Manager. 3. Check installation status of DIMMs. 4. Replace the DIMM. 5. If the same error persists, contact your service representative.

On-screen error message		Recommended action
0250	System battery is dead - Replace and run SETUP	1. Take one of the following measures to power off the modular server and then on. * Power off the modular server from OS, then press the POWER/SLEEP switch to power on. * Press the POWER/SLEEP switch to power off the modular server, then press it again to power on. * Issue a command from Web browser of EXPRESSSCOPE Engine or NEC ESMPRO Manager. 2. Power off the modular server by issuing an OS command or press the POWER/SLEEP switch. Take the modular server out of the Module Enclosure, and install it again. Then, press the POWER/SLEEP switch to turn on the modular server. 3. Check installation status of the lithium battery on modular server. 4. If the same error persists, contact your service representative. Note: Restart the modular server, run BIOS SETUP, and provide settings for date, time, and others.
0251	System CMOS checksum bad - Default configuration used	The default configuration of BIOS SETUP is used. 1. Run the BIOS SETUP utility to correct the setting. 2. If the same error persists, contact your service representative.
0252	Password checksum bad - Passwords cleared	The password has been cleared. 1. Run the BIOS SETUP utility to correct the setting. 2. If the same error persists, contact your service representative.
0260	System timer error	1. Take one of the following measures to power off the modular server and then on. * Power off the modular server from OS, then press the POWER/SLEEP switch to power on. * Press the POWER/SLEEP switch to power off the modular server, then press it again to power on. * Issue a command from Web browser of EXPRESSSCOPE Engine or NEC ESMPRO Manager. 2. If the same error persists, contact your service representative.
0270	Real timer error	
0271	Check date and time setting	1. Run the BIOS SETUP utility to set the current date and time. 2. If the same error persists, contact your service representative.
02D0		1. Take one of the following measures to reboot (reset) the modular server. * Issue an OS command. * Press **Ctrl** + **Alt** + **Del**. * Issue a command from Web browser of EXPRESSSCOPE Engine or NEC ESMPRO Manager. 2. Take one of the following measures to power off the modular server and then on. * Power off the modular server from OS, then press the POWER/SLEEP switch to power on. * Press the POWER/SLEEP switch to power off the modular server, then press it again to power on. * Issue a command from Web browser of EXPRESSSCOPE Engine or NEC ESMPRO Manager. 3. If the same error persists, contact your service representative.

On-screen error message	Recommended action
0B70 The error occurred during temperature sensor reading	1. Take one of the following measures to reboot (reset) the modular server. * Issue an OS command. * Press **Ctrl** + **Alt** + **Del**. * Issue a command from Web browser of EXPRESSSCOPE Engine or NEC ESMPRO Manager. 2. Take one of the following measures to power off the modular server and then on. * Power off the modular server from OS, then press the POWER/SLEEP switch to power on. * Press the POWER/SLEEP switch to power off the modular server, then press it again to power on. * Issue a command from Web browser of EXPRESSSCOPE Engine or NEC ESMPRO Manager. 3. Power off the modular server by issuing an OS command or press the POWER/SLEEP switch. Take the modular server out of the Module Enclosure, and install it again. Then, press the POWER/SLEEP switch to turn on the modular server. 4. If the same error persists, contact your service representative.
0B71 System Temperature out of the range	1. Check if fans in Module Enclosure work normally. 2. Refer to the User's Guide of the Module Enclosure to make sure that the sufficient number of fans are installed in correct locations. 3. Check if the fans and modular servers are installed in correct locations. 4. Check installation status of heat sink of the modular server. 5. Check if the ambient temperature of installation location satisfies the operation guarantee condition. 6. Take one of the following measures to reboot (reset) the modular server. * Issue an OS command. * Press **Ctrl** + **Alt** + **Del**. * Issue a command from Web browser of EXPRESSSCOPE Engine or NEC ESMPRO Manager. 7. Take one of the following measures to power off the modular server and then on. * Power off the modular server from OS, then press the POWER/SLEEP switch to power on. * Press the POWER/SLEEP switch to power off the modular server, then press it again to power on. * Issue a command from Web browser of EXPRESSSCOPE Engine or NEC ESMPRO Manager. 8. Power off the modular server by issuing an OS command or press the POWER/SLEEP switch. Take the modular server out of the Module Enclosure, and install it again. Then, press the POWER/SLEEP switch to turn on the modular server. 9. If the same error persists, contact your service representative.

On-screen error message		Recommended action
0B74	The error occurred during voltage sensor reading	1. Take one of the following measures to reboot (reset) the modular server. * Issue an OS command. * Press **Ctrl** + **Alt** + **Del**. * Issue a command from Web browser of EXPRESSSCOPE Engine or NEC ESMPRO Manager. 2. Take one of the following measures to power off the modular server and then on. * Power off the modular server from OS, then press the POWER/SLEEP switch to power on. * Press the POWER/SLEEP switch to power off the modular server, then press it again to power on. * Issue a command from Web browser of EXPRESSSCOPE Engine or NEC ESMPRO Manager. 3. Power off the modular server by issuing an OS command or press the POWER/SLEEP switch. Take the modular server out of the Module Enclosure, and install it again. Then, press the POWER/SLEEP switch to turn on the modular server. 4. If the same error persists, contact your service representative.
0B75	System Voltage out of the range	1. Take one of the following measures to reboot (reset) the modular server. * Issue an OS command. * Press **Ctrl** + **Alt** + **Del**. * Issue a command from Web browser of EXPRESSSCOPE Engine or NEC ESMPRO Manager. 2. Take one of the following measures to power off the modular server and then on. * Power off the modular server from OS, then press the POWER/SLEEP switch to power on. * Press the POWER/SLEEP switch to power off the modular server, then press it again to power on. * Issue a command from Web browser of EXPRESSSCOPE Engine or NEC ESMPRO Manager. 3. Power off the modular server by issuing an OS command or press the POWER/SLEEP switch. Take the modular server out of the Module Enclosure, and install it again. Then, press the POWER/SLEEP switch to turn on the modular server. 4. If the same error persists, contact your service representative.
0B82	BMC core hardware failure	1. Power off the modular server by issuing an OS command or press the POWER/SLEEP switch. Take the modular server out of the Module Enclosure, and install it again. Then, press the POWER/SLEEP switch to turn on the modular server. 2. If the same error persists, contact your service representative.

On-screen error message		Recommended action
0B83	BMC IBF or OBF check failed	1. Take one of the following measures to reboot (reset) the modular server. * Issue an OS command. * Press **Ctrl** + **Alt** + **Del**. * Issue a command from Web browser of EXPRESSSCOPE Engine or NEC ESMPRO Manager. 2. Take one of the following measures to power off the modular server and then on. * Power off the modular server from OS, then press the POWER/SLEEP switch to power on. * Press the POWER/SLEEP switch to power off the modular server, then press it again to power on. * Issue a command from Web browser of EXPRESSSCOPE Engine or NEC ESMPRO Manager. 3. Power off the modular server by issuing an OS command or press the POWER/SLEEP switch. Take the modular server out of the Module Enclosure, and install it again. Then, press the POWER/SLEEP switch to turn on the modular server. 4. If the same error persists, contact your service representative.
0B8A	BMC SEL area full	1. Run BIOS SETUP, select [Server] - [Event Log Configuration] - [Clear All Error Logs] to clear the IPMI system event logs. 2. If the same error persists, contact your service representative. Note: You can make a backup copy of IPMI system event logs through the Off-line Maintenance Utility before clearing the IPMI system event logs on BIOS SETUP.
0B8B	BMC progress check timeout	1. Take one of the following measures to reboot (reset) the modular server. * Issue an OS command. * Press **Ctrl** + **Alt** + **Del**. * Issue a command from Web browser of EXPRESSSCOPE Engine or NEC ESMPRO Manager. 2. Take one of the following measures to power off the modular server and then on. * Power off the modular server from OS, then press the POWER/SLEEP switch to power on. * Press the POWER/SLEEP switch to power off the modular server, then press it again to power on. * Issue a command from Web browser of EXPRESSSCOPE Engine or NEC ESMPRO Manager. 3. Power off the modular server by issuing an OS command or press the POWER/SLEEP switch. Take the modular server out of the Module Enclosure, and install it again. Then, press the POWER/SLEEP switch to turn on the modular server. 4. If the same error persists, contact your service representative.
0B8D	Could not redirect the console - BMC Busy -	
0B8E	Could not redirect the console - BMC Error -	
0B8F	Could not redirect the console - BMC Parameter Error -	

On-screen error message		Recommended action
0B90	BMC Platform Information Area Corrupted	1. Take one of the following measures to reboot (reset) the modular server. * Issue an OS command. * Press **Ctrl** + **Alt** + **Del**. * Issue a command from Web browser of EXPRESSSCOPE Engine or NEC ESMPRO Manager. 2. Take one of the following measures to power off the modular server and then on. * Power off the modular server from OS, then press the POWER/SLEEP switch to power on. * Press the POWER/SLEEP switch to power off the modular server, then press it again to power on. * Issue a command from Web browser of EXPRESSSCOPE Engine or NEC ESMPRO Manager. 3. Power off the modular server by issuing an OS command or press the POWER/SLEEP switch. Take the modular server out of the Module Enclosure, and install it again. Then, press the POWER/SLEEP switch to turn on the modular server. 4. If the same error persists, contact your service representative.
0B91	BMC update firmware corrupted	
0B92	Internal Use Area of BMC FRU corrupted	
0B93	BMC SDR Repository empty	
0B94	IPMB signal lines do not respond	1. Take one of the following measures to reboot (reset) the modular server. * Issue an OS command. * Press **Ctrl** + **Alt** + **Del**. * Issue a command from Web browser of EXPRESSSCOPE Engine or NEC ESMPRO Manager. 2. Take one of the following measures to power off the modular server and then on. * Power off the modular server from OS, then press the POWER/SLEEP switch to power on. * Press the POWER/SLEEP switch to power off the modular server, then press it again to power on. * Issue a command from Web browser of EXPRESSSCOPE Engine or NEC ESMPRO Manager. 3. Power off the modular server by issuing an OS command or press the POWER/SLEEP switch. Take the modular server out of the Module Enclosure, and install it again. Then, press the POWER/SLEEP switch to turn on the modular server. 4. If the same error persists, contact your service representative.

On-screen error message		Recommended action
0B95	BMC FRU device failure	1. Take one of the following measures to reboot (reset) the modular server. * Issue an OS command. * Press **Ctrl** + **Alt** + **Del**. * Issue a command from Web browser of EXPRESSSCOPE Engine or NEC ESMPRO Manager. 2. Take one of the following measures to power off the modular server and then on. * Power off the modular server from OS, then press the POWER/SLEEP switch to power on. * Press the POWER/SLEEP switch to power off the modular server, then press it again to power on. * Issue a command from Web browser of EXPRESSSCOPE Engine or NEC ESMPRO Manager. 3. Power off the modular server by issuing an OS command or press the POWER/SLEEP switch. Take the modular server out of the Module Enclosure, and install it again. Then, press the POWER/SLEEP switch to turn on the modular server. 4. If the same error persists, contact your service representative.
0B96	BMC SDR Repository failure	
0B97	BMC SEL device failure	
0B98	BMC RAM test error	
0B99	BMC Fatal hardware error	
0BB0	SMBIOS - SROM data read error	1. Take one of the following measures to reboot (reset) the modular server. * Issue an OS command. * Press **Ctrl** + **Alt** + **Del**. * Issue a command from Web browser of EXPRESSSCOPE Engine or NEC ESMPRO Manager. 2. Take one of the following measures to power off the modular server and then on. * Power off the modular server from OS, then press the POWER/SLEEP switch to power on. * Press the POWER/SLEEP switch to power off the modular server, then press it again to power on. * Issue a command from Web browser of EXPRESSSCOPE Engine or NEC ESMPRO Manager. 3. Power off the modular server by issuing an OS command or press the POWER/SLEEP switch. Take the modular server out of the Module Enclosure, and install it again. Then, press the POWER/SLEEP switch to turn on the modular server. 4. If the same error persists, contact your service representative.
0BB1	SMBIOS - SROM data checksum bad	

On-screen error message		Recommended action
0BD1	1st SMBus device Error detected	1. Take one of the following measures to reboot (reset) the modular server. * Issue an OS command. * Press **Ctrl** + **Alt** + **Del**. * Issue a command from Web browser of EXPRESSSCOPE Engine or NEC ESMPRO Manager. 2. Take one of the following measures to power off the modular server and then on. * Power off the modular server from OS, then press the POWER/SLEEP switch to power on. * Press the POWER/SLEEP switch to power off the modular server, then press it again to power on. * Issue a command from Web browser of EXPRESSSCOPE Engine or NEC ESMPRO Manager. 3. Power off the modular server by issuing an OS command or press the POWER/SLEEP switch. Take the modular server out of the Module Enclosure, and install it again. Then, press the POWER/SLEEP switch to turn on the modular server. 4. If the same error persists, contact your service representative.
0BD4	2nd SMBus device Error detected	1. Take one of the following measures to reboot (reset) the modular server. * Issue an OS command. * Press **Ctrl** + **Alt** + **Del**. * Issue a command from Web browser of EXPRESSSCOPE Engine or NEC ESMPRO Manager. 2. Take one of the following measures to power off the modular server and then on. * Power off the modular server from OS, then press the POWER/SLEEP switch to power on. * Press the POWER/SLEEP switch to power off the modular server, then press it again to power on. * Issue a command from Web browser of EXPRESSSCOPE Engine or NEC ESMPRO Manager. 3. Power off the modular server by issuing an OS command or press the POWER/SLEEP switch. Take the modular server out of the Module Enclosure, and install it again. Then, press the POWER/SLEEP switch to turn on the modular server. 4. If the same error persists, contact your service representative.
0BD7	3rd SMBus device Error detected	
0BDA	4th SMBus device Error detected	
0BDD	5th SMBus device Error detected	
0BE0	6th SMBus device Error detected	
8100	Memory Error detected in DIMM #1	1. Run BIOS SETUP and select [Advanced] - [Memory Configuration] - [Memory Retest] - [Yes] and reboot the modular server. 2. DIMM may be faulty. Replace it with new one. 3. If the same error persists, contact your service representative.
8101	Memory Error detected in DIMM #2	
8150	NVRAM Cleared By Jumper	Contact your service representative.
8151	Password Cleared By Jumper	

Error Messages on Virtual LCD

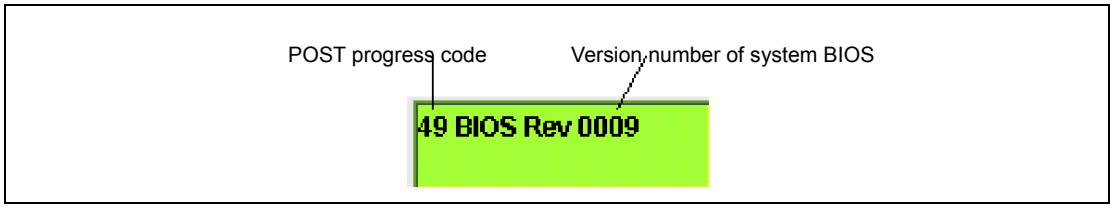
If POST detects an error, it displays POST error code on Virtual LCD upon completion of POST. See the table for POST error codes for details.

The remote management feature of EXPRESSSCOPE Engine and NEC ESMPRO displays the status of the managed modular server on virtual LCD (16 digits x 2 lines).

IMPORTANT:

- You may ask your service representative for checking installation status or replacing any devices.
- Take a note on the on-screen message before contacting your service representative. The alarm indication would be a great help for maintenance.
- To cope with the trouble, reboot the modular server or power off the modular server before taking any other countermeasures.

POST in progress



POST error code

POST Progress Codes

POST progress code	Description
28h	Initializing and checking memory
2Ah	Zero Clear of memory
2Ch	Address line test of memory
2Eh	Data line test of memory
0Ah	Initializing processor
2Fh	Setting cache for processor
38h	Shadowing system BIOS
67h	Initializing application processor
69h	Initializing SMI
49h	Initializing PCI device (Resource assignment)
55h	Initializing USB
4Ah	Initializing video controller
4Ch	Shadowing video BIOS
59h	Initializing display feature of POST
C6h	Initializing console redirection feature
4Eh	Displaying copyright
50h	Displaying processor information
60h	Test for expanded memory
62h	Address test for expanded memory
68h	Configuring cache
6Ah	Displaying cache size
87h	Configuring I/O device
98h	Extracting option ROM of PCI device
93h	Configuring multi-processor
9Ch	Setting up SMI
BAh	Initializing SMBIOS
C3h	Displaying POST error
ACh	Starting BIOS SETUP
B0h	Checking POST error
BDh	Displaying Boot menu
97h	Creating MP table
C0h	Starting boot process

Other Messages

Messages displayed on upper line

When STATUS lamp is lighting in green:

On-screen message	Description	Action
Prepare To Boot	POST completes normally.	This is not an error.

When STATUS lamp is off:

On-screen message	Description	Action
PCI Bus SERR 01	A system error was detected on chipset.	1. Take one of the following measures to reboot (reset) the modular server. * Issue an OS command. * Press **Ctrl** + **Alt** + **Del**. * Issue a command from Web browser of EXPRESSSCOPE Engine or NEC ESMPRO Manager. 2. Take one of the following measures to power off the modular server and then on. * Power off the modular server from OS, then press the POWER/SLEEP switch to power on. * Press the POWER/SLEEP switch to power off the modular server, then press it again to power on. * Issue a command from Web browser of EXPRESSSCOPE Engine or NEC ESMPRO Manager. 3. If the same error persists, contact your service representative.
PCI Bus SERR 07	A system error was detected on LAN1 device.	
PCI Bus SERR 09	A system error was detected on LAN2 device.	
PCI Bus PERR 01	A system error was detected on chipset.	
PCI Bus PERR 07	A system error was detected on LAN1 device.	
PCI Bus PERR 09	A system error was detected on LAN2 device.	

Messages displayed on lower line

When STATUS lamp is off:

On-screen message	Description	Action
SMI Timeout	A timeout error occurred during system management interrupt.	1. Take one of the following measures to reboot (reset) the modular server. * Issue an OS command. * Press **Ctrl** + **Alt** + **Del**. * Issue a command from Web browser of EXPRESSSCOPE Engine or NEC ESMPRO Manager. 2. Take one of the following measures to power off the modular server and then on. * Power off the modular server from OS, then press the POWER/SLEEP switch to power on. * Press the POWER/SLEEP switch to power off the modular server, then press it again to power on. * Issue a command from Web browser of EXPRESSSCOPE Engine or NEC ESMPRO Manager. 3. Power off the modular server by issuing a command from OS or pressing the POWER/SLEEP switch. Remove the modular server from Module Enclosure, then install it again. Then press the POWER/SLEEP switch to power on the modular server. 4. If the same error persists, contact your service representative.
DUMP Request!	DUMP switch was pressed.	Wait until OS dump process completes. 1. If the dump process is not complete, take one of the following steps. * Issue a command from OS. * Press **Ctrl** + **Alt** + **Del**. * Issue a command from Web browser of EXPRESSSCOPE Engine or NEC ESMPRO Manager. 2. Take one of the following measures to power off the modular server and then on. * Power off the modular server from OS, then press the POWER/SLEEP switch to power on. * Press the POWER/SLEEP switch to power off the modular server, then press it again to power on. * Issue a command from Web browser of EXPRESSSCOPE Engine or NEC ESMPRO Manager. 3. If the same error persists, contact your service representative.

On-screen message	Description	Action
WDT Timeout	Watchdog timer timeout error occurred.	1. Take one of the following measures to reboot (reset) the modular server. * Issue an OS command. * Press **Ctrl** + **Alt** + **Del**. * Issue a command from Web browser of EXPRESSSCOPE Engine or NEC ESMPRO Manager. 2. Take one of the following measures to power off the modular server and then on. * Power off the modular server from OS, then press the POWER/SLEEP switch to power on. * Press the POWER/SLEEP switch to power off the modular server, then press it again to power on. * Issue a command from Web browser of EXPRESSSCOPE Engine or NEC ESMPRO Manager. 3. Power off the modular server by issuing a command from OS or pressing the POWER/SLEEP switch. Remove the modular server from Module Enclosure, then install it again. Then press the POWER/SLEEP switch to power on the modular server. 4. If the same error persists, contact your service representative.
Processor T-Trip	Forced power-off occurred due to a thermal error in processor.	1. Take one of the following measures to power on the modular server and then on. * Press the POWER/SLEEP switch to power on. * Issue a command from Web browser of EXPRESSSCOPE Engine or NEC ESMPRO Manager. 2. Check if fans in Module Enclosure work normally. 3. Refer to the User's Guide of the Module Enclosure to make sure that the sufficient number of fans are installed in correct locations. 4. Check if the fans and modular servers are installed in correct locations. 5. Check if the ambient temperature of installation location satisfies the operation guarantee condition. 6. If the same error persists, contact your service representative.

When STATUS lamp is lighting in amber:

On-screen message	Description	Action
Proc Temp Alm 02	A low temperature alarm is detected in processor.	1. Check if fans in Module Enclosure work normally. 2. Refer to the User's Guide of the Module Enclosure to make sure that the sufficient number of fans are installed in correct locations. 3. Check if the fans and modular servers are installed in correct locations. 4. Check installation status of the heat sink of the modular server. 5. Check if the operating environment satisfies the required guaranteed temperature. 6. Take one of the following measures to reboot (reset) the modular server. * Issue an OS command. * Press **Ctrl** + **Alt** + **Del**. * Issue a command from Web browser of EXPRESSSCOPE Engine or NEC ESMPRO Manager. 7. Take one of the following measures to power off the modular server and then on. * Power off the modular server from OS, then press the POWER/SLEEP switch to power on. * Press the POWER/SLEEP switch to power off the modular server, then press it again to power on. * Issue a command from Web browser of EXPRESSSCOPE Engine or NEC ESMPRO Manager. 8. Power off the modular server by issuing an OS command or press the POWER/SLEEP switch. Take the modular server out of the Module Enclosure, and install it again. Then, press the POWER/SLEEP switch to turn on the modular server. 9. If the same error persists, contact your service representative.
Proc Temp Alm 09	A high temperature alarm is detected in processor.	

On-screen message	Description	Action
BB Temp2 Alm 02	A low temperature alarm is detected in base board.	1. Check if fans in Module Enclosure work normally. 2. Refer to the User's Guide of the Module Enclosure to make sure that the sufficient number of fans are installed in correct locations. 3. Check if the fans and modular servers are installed in correct locations. 4. Check if the ambient temperature of installation location satisfies the operation guarantee condition. 5. Take one of the following measures to reboot (reset) the modular server. * Issue an OS command. * Press **Ctrl** + **Alt** + **Del**. * Issue a command from Web browser of EXPRESSSCOPE Engine or NEC ESMPRO Manager. 6. Take one of the following measures to power off the modular server and then on. * Power off the modular server from OS, then press the POWER/SLEEP switch to power on. * Press the POWER/SLEEP switch to power off the modular server, then press it again to power on. * Issue a command from Web browser of EXPRESSSCOPE Engine or NEC ESMPRO Manager. 7. Power off the modular server by issuing an OS command or press the POWER/SLEEP switch. Take the modular server out of the Module Enclosure, and install it again. Then, press the POWER/SLEEP switch to turn on the modular server. 8. If the same error persists, contact your service representative.
BB Temp2 Alm 09	A high temperature alarm is detected in base board.	
BB Temp1 Alm 02	A low temperature alarm is detected in base board.	
BB Temp1 Alm 09	A high temperature alarm is detected in base board.	

On-screen message	Description	Action
VBAT Alm 02	A voltage alarm (lower limit) occurred on lithium battery.	1. Take one of the following measures to power off the modular server and then on. * Power off the modular server from OS, then press the POWER/SLEEP switch to power on. * Press the POWER/SLEEP switch to power off the modular server, then press it again to power on. * Issue a command from Web browser of EXPRESSSCOPE Engine or NEC ESMPRO Manager. 2. Power off the modular server by issuing an OS command or press the POWER/SLEEP switch. Take the modular server out of the Module Enclosure, and install it again. Then, press the POWER/SLEEP switch to turn on the modular server. 3. Check installation status of the lithium battery mounted on modular server. 4. If the same error persists, contact your service representative.
VBAT Alm 09	A voltage alarm (upper limit) occurred on lithium battery.	

On-screen message	Description	Action
BB 1.8v Alm 02	1.8V voltage alarm (lower limit) occurred.	1. Take one of the following measures to power off the modular server and then on. * Power off the modular server from OS, then press the POWER/SLEEP switch to power on. * Press the POWER/SLEEP switch to power off the modular server, then press it again to power on. * Issue a command from Web browser of EXPRESSSCOPE Engine or NEC ESMPRO Manager. 2. Power off the modular server by issuing an OS command or press the POWER/SLEEP switch. Take the modular server out of the Module Enclosure, and install it again. Then, press the POWER/SLEEP switch to turn on the modular server. 3. If the same error persists, contact your service representative.
BB 1.8v Alm 09	1.8V voltage alarm (upper limit) occurred.	
BB 0.9v Alm 02	0.9V voltage alarm (lower limit) occurred.	
BB 0.9v Alm 09	0.9V voltage alarm (upper limit) occurred.	
BB 1.5v Alm 02	1.5V voltage alarm (lower limit) occurred.	
BB 1.5v Alm 09	1.5V voltage alarm (upper limit) occurred.	
BB 3.3v Alm 02	3.3V voltage alarm (lower limit) occurred.	
BB 3.3v Alm 09	3.3V voltage alarm (upper limit) occurred.	
BB 5.0v Alm 02	5.0V voltage alarm (lower limit) occurred.	
BB 5.0v Alm 09	5.0V voltage alarm (upper limit) occurred.	
BB 12v Alm 02	12V voltage alarm (lower limit) occurred.	
BB 12v Alm 09	12V voltage alarm (upper limit) occurred.	
BB 1.2vsb Alm 02	1.2Vsb voltage alarm (lower limit) occurred.	
BB 1.2vsb Alm 09	1.2Vsb voltage alarm (upper limit) occurred.	
BB 3.3vsb Alm 02	3.3Vsb voltage alarm (lower limit) occurred.	
BB 3.3vsb Alm 09	3.3Vsb voltage alarm (upper limit) occurred.	

On-screen message	Description	Action
Proc 1.05v Alm 02	1.05V voltage alarm (lower limit) occurred on processor.	1. Take one of the following measures to power off the modular server and then on. * Power off the modular server from OS, then press the POWER/SLEEP switch to power on. * Press the POWER/SLEEP switch to power off the modular server, then press it again to power on. * Issue a command from Web browser of EXPRESSSCOPE Engine or NEC ESMPRO Manager. 2. Power off the modular server by issuing an OS command or press the POWER/SLEEP switch. Take the modular server out of the Module Enclosure, and install it again. Then, press the POWER/SLEEP switch to turn on the modular server. 3. Check installation status of the heat sink of the modular server. 4. If the same error persists, contact your service representative.
Proc 1.05v Alm 09	1.05V voltage alarm (upper limit) occurred on processor.	
Proc Core Alm 02	A core voltage alarm (lower limit) was detected in processor.	
Proc Core Alm 09	A core voltage alarm (upper limit) was detected in processor.	
Proc Missing	No processor is installed.	Contact your service representative.

When STATUS lamp is blinking in amber:

<table>
<tr><th>On-screen message</th><th>Description</th><th>Action</th></tr>
<tr><td>System FAN2R Alm</td><td>A warning was detected on the rear fan box 2.</td><td rowspan="4">1. Refer to the User's Guide of the Module Enclosure to replace the fan unit.
2. If the same error persists, contact your service representative.</td></tr>
<tr><td>System FAN2F Alm</td><td>A warning was detected on the front fan box 2.</td></tr>
<tr><td>System FAN1R Alm</td><td>A warning was detected on the rear fan box 1.</td></tr>
<tr><td>System FAN1F Alm</td><td>A warning was detected on the front fan box 1.</td></tr>
<tr><td>Proc Temp Alm 00</td><td>A low temperature warning was detected on processor.</td><td rowspan="2">1. Check if fans in Module Enclosure work normally.
2. Refer to the User's Guide of the Module Enclosure to make sure that the sufficient number of fans are installed in correct locations.
3. Check if the fans and modular servers are installed in correct locations.
4. Check installation status of the heat sink of the modular server.
5. Check if the ambient temperature of installation location satisfies the operation guarantee condition.
6. Take one of the following measures to reboot (reset) the modular server.
* Issue an OS command.
* Press Ctrl + Alt + Del.
* Issue a command from Web browser of EXPRESSSCOPE Engine or NEC ESMPRO Manager.
7. Take one of the following measures to power off the modular server and then on.
* Power off the modular server from OS, then press the POWER/SLEEP switch to power on.
* Press the POWER/SLEEP switch to power off the modular server, then press it again to power on.
* Issue a command from Web browser of EXPRESSSCOPE Engine or NEC ESMPRO Manager.
8. Power off the modular server by issuing an OS command or press the POWER/SLEEP switch. Take the modular server out of the Module Enclosure, and install it again. Then, press the POWER/SLEEP switch to turn on the modular server.
9. If the same error persists, contact your service representative.</td></tr>
<tr><td>Proc Temp Alm 07</td><td>A high temperature warning was detected on processor.</td></tr>
</table>

On-screen message	Description	Action
BB Temp2 Alm 00	A low temperature warning was detected on base board.	1. Check if fans in Module Enclosure work normally. 2. Refer to the User's Guide of the Module Enclosure to make sure that the sufficient number of fans are installed in correct locations. 3. Check if the fans and modular servers are installed in correct locations. 4. Check if the ambient temperature of installation location satisfies the operation guarantee condition. 5. Take one of the following measures to reboot (reset) the modular server. * Issue an OS command. * Press **Ctrl** + **Alt** + **Del**. * Issue a command from Web browser of EXPRESSSCOPE Engine or NEC ESMPRO Manager. 6. Take one of the following measures to power off the modular server and then on. * Power off the modular server from OS, then press the POWER/SLEEP switch to power on. * Press the POWER/SLEEP switch to power off the modular server, then press it again to power on. * Issue a command from Web browser of EXPRESSSCOPE Engine or NEC ESMPRO Manager. 7. Power off the modular server by issuing an OS command or press the POWER/SLEEP switch. Take the modular server out of the Module Enclosure, and install it again. Then, press the POWER/SLEEP switch to turn on the modular server. 8. If the same error persists, contact your service representative.
BB Temp2 Alm 07	A high temperature warning was detected on base board.	
BB Temp1 Alm 00	A low temperature warning was detected on base board.	
BB Temp1 Alm 07	A high temperature warning was detected on base board.	

On-screen message	Description	Action
VBAT Alm 00	A voltage warning (lower limit) was detected on lithium battery.	1. Take one of the following measures to power off the modular server and then on. * Power off the modular server from OS, then press the POWER/SLEEP switch to power on. * Press the POWER/SLEEP switch to power off the modular server, then press it again to power on. * Issue a command from Web browser of EXPRESSSCOPE Engine or NEC ESMPRO Manager. 2. Power off the modular server by issuing an OS command or press the POWER/SLEEP switch. Take the modular server out of the Module Enclosure, and install it again. Then, press the POWER/SLEEP switch to turn on the modular server. 3. Check installation status of the lithium battery mounted on modular server. 4. If the same error persists, contact your service representative.
VBAT Alm 07	A voltage warning (upper limit) was detected on lithium battery.	

On-screen message	Description	Action
BB 1.8v Alm 00	1.8V voltage warning (lower limit) was detected.	1. Take one of the following measures to power off the modular server and then on. * Power off the modular server from OS, then press the POWER/SLEEP switch to power on. * Press the POWER/SLEEP switch to power off the modular server, then press it again to power on. * Issue a command from Web browser of EXPRESSSCOPE Engine or NEC ESMPRO Manager. 2. Power off the modular server by issuing an OS command or press the POWER/SLEEP switch. Take the modular server out of the Module Enclosure, and install it again. Then, press the POWER/SLEEP switch to turn on the modular server. 3. If the same error persists, contact your service representative.
BB 1.8v Alm 07	1.8V voltage warning (upper limit) was detected.	
BB 0.9v Alm 00	0.9V voltage warning (lower limit) was detected.	
BB 0.9v Alm 07	0.9V voltage warning (upper limit) was detected.	
BB 1.5v Alm 00	1.5V voltage warning (lower limit) was detected.	
BB 1.5v Alm 07	1.5V voltage warning (upper limit) was detected.	
BB 3.3v Alm 00	3.3V voltage warning (lower limit) was detected.	
BB 3.3v Alm 07	3.3V voltage warning (upper limit) was detected.	
BB 5.0v Alm 00	5.0V voltage warning (lower limit) was detected.	
BB 5.0v Alm 07	5.0V voltage warning (upper limit) was detected.	
BB 12v Alm 00	12V voltage warning (lower limit) was detected.	
BB 12v Alm 07	12V voltage warning (upper limit) was detected.	
BB 1.2vsb Alm 00	1.2Vsb voltage warning (lower limit) was detected.	
BB 1.2vsb Alm 07	1.2Vsb voltage warning (upper limit) was detected.	
BB 3.3vsb Alm 00	3.3Vsb voltage warning (lower limit) was detected.	
BB 3.3vsb Alm 07	3.3Vsb voltage warning (upper limit) was detected.	

On-screen message	Description	Action
Proc 1.05v Alm 00	1.05V voltage warning (lower limit) was detected on processor.	1. Take one of the following measures to power off the modular server and then on. * Power off the modular server from OS, then press the POWER/SLEEP switch to power on. * Press the POWER/SLEEP switch to power off the modular server, then press it again to power on. * Issue a command from Web browser of EXPRESSSCOPE Engine or NEC ESMPRO Manager. 2. Power off the modular server by issuing an OS command or press the POWER/SLEEP switch. Take the modular server out of the Module Enclosure, and install it again. Then, press the POWER/SLEEP switch to turn on the modular server. 3. Check installation status of the heat sink of the modular server. 4. If the same error persists, contact your service representative.
Proc 1.05v Alm 07	1.05V voltage warning (upper limit) was detected on processor.	
Proc Core Alm 00	A core voltage warning (lower limit) was detected on processor.	
Proc Core Alm 07	A core voltage warning (upper limit) was detected on processor.	

SOLVING PROBLEMS

When the system fails to operate as expected, see the following to find out your problem and follow the instruction given before asking for repair.

If the system still fails to operate successfully after solving your problem, take a note on the on-screen message and contact your service representative.

Modular Server

Fail to power-on:

- ❑ Is the proper power supplied to the system?

  → Use the power cord shipped with the Module Enclosure. In addition, make sure that the outer cover of the power cord is not broken and the cord at the plug is not bent.

  → Make sure that the DC output switch on EcoPowerGateway is set to ON.

  → Make sure that the modular server is installed correctly.

  The BIOS SETUP utility of modular server allows you to set the feature for power link with the Module Enclosure.

  <Menus to check: [AC-LINK] in [Server] menu>

- ❑ Does the EcoPowerGateway contain the required number of power units?

  → Refer to the User's Guide of EcoPowerGateway for the required number of power units.

- ❑ Does the Module Enclosure contain the required number of fans in proper location?

  → Refer to the User's Guide of Module Enclosure for the required number of fans and their installation locations.

- ❑ Did you turn on the power of Module Enclosure within 5 seconds after AC power is supplied to the modular server?

  → Initialization of BMC takes about 5 seconds after AC power is supplied to the modular server. After installing the modular server to Module Enclosure, wait for about 5 seconds or longer, then turn on the power of Module Enclosure by using the POWER/SLEEP switch.

The remote power-on through network does not work (Wake On LAN does not work):

- ❑ Is the system shut down forcibly?

  → After the forced shutdown (or pressing the POWER/SLEEP switch on the modular server for 4 seconds or longer brings the power of the modular server to be turned off forcibly), Wake On LAN does not work. Restart the modular server, perform the normal shutdown processing.

Fail to power-off:

- ❑ Is the POWER switch function disabled?

  → Restart the modular server and then run the BIOS SETUP utility.
  <Menus to check: [Security] – [Power Switch Inhibit]>

The modular server unexpectedly turned off or shutdown:

- ❑ Is any temperature alarm or warning detected?

  → The modular server shuts down when temperature alarm or warning is detected. Use the modular server in an appropriate operating environment.

POST fails to complete:

- ❑ Is DIMM installed properly?

  → POST does not operate if DIMM is not installed properly.

- ❑ Is the keyboard or mouse manipulated just after starting a modular server?

  → If you manipulate the keyboard or mouse just after POST is started, POST may detect an error of the keyboard controller by mistake to halt the processing. If this occurs, run POST again. Just after restarting POST, do not perform any operation by using the keyboard or mouse until the BIOS start message appears.

- ❑ Are DIMMs available for modular servers installed?

  → NEC cannot secure the operation of any device other than those approved by NEC.

"System Configuration Data Read Error" appears and POST pauses:

- ❑ Did you perform any of the following operation?
  - – Pressed the POWER/SLEEP switch of the modular server to forcedly power off the modular server.
  - – Removed the modular server from the Module Enclosure.

  → Contact your service representative.

The MAC address of the onboard LAN of the modular server is unknown:

→ You can find the MAC address by the label put near the edge of the modular server. See Chapter 3 for details.

Fail to access to internal or external devices (or such devices fail to operate):

- ❑ Are cables properly connected?

  → Make sure that the interface cables and power cord are properly connected. Also, make sure that the cables are connected in the correct order.

- ❑ Is the power-on order correct?

  → When the modular server has any external devices connected, power on the external devices first, then the modular server.

- ❑ Did you install drivers for connected optional devices?

  → Some optional devices require specific device drivers. Refer to the manual that comes with the device to install its driver.

- ❑ Is BIOS configuration correct?

  → Some devices connected to the serial or USB port may require I/O port address or operation mode settings. Refer to the manual that comes with the board for details to make correct settings.

  <Menu to check: [Advanced] – [Peripheral Configuration], [Server] – [Console Redirection]>

The keyboard or mouse fails to operate:

- ❑ Is BIOS configuration correct?

  → The keyboard and mouse may be disabled with the BIOS SETUP utility of the modular server. Check the settings with the BIOS SETUP utility.

  <Menus to check: [Advanced] – [Peripheral Configuration], [Advanced] – [NumLock]>

- ❑ Did you install drivers for keyboard and mouse?

  → Refer to the manual that comes with your OS to check that the keyboard and mouse drivers are installed. (These drivers are installed along with the OS.) Some OS's allow you to change the keyboard and mouse settings. Refer to manual that comes with your OS to check that the keyboard and mouse settings are correct.

- ❑ Is the system used in the status that Windows Server 2003 or Linux is not running?

  → In the following states with the use of USB keyboard and USB floppy disk drive, conduct key entries when the access lamp on the USB floppy disk drive is off (or the floppy disk is not accessed).

  – Press **F6**, **S**, and **Enter** in installation by using the Windows Setup Disk.

  – Start of ROM-DOS Startup FD for command input

Fail to access the hard disk drive:

- ❑ Is the hard disk drive applicable to the modular server?

  → Operation of any device that is not authorized by NEC is not guaranteed.

- ❑ Is the hard disk drive properly installed?

  → Check if the hard disk drive is properly connected to the internal SAS/SATA cable connector.

Fail to start the OS:

- ❑ Is the BIOS configuration correct?

  → Run the BIOS SETUP utility to change the boot order (see Chapter 4).

  <Menus to check: [Boot]>

- ❑ Is a floppy disk in the floppy disk drive?

  → Take out the floppy disk and restart the modular server.

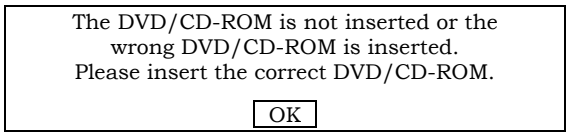
A message "Floppy disk is not ready" appears even the floppy disk has been inserted in the external USB floppy disk drive.

A message "Floppy disk is write-protected" appears even the floppy disk in the USB floppy disk drive is not write-protected.

- ❑ It is not a failure.

  → Retry several times.

Inserted the correct DVD/CD-ROM but the message like the following is displayed:



- ❑ Is the data side of the DVD/CD-ROM dirty or damaged?

  → Take the DVD/CD-ROM out of the optical disk drive, make sure that it is not dirty or damaged, set it back again and click [OK].

Fail to access to the DVD/CD-ROM:

- ❑ Is the DVD/CD-ROM properly set in the optical disk drive tray?

  → Take the DVD/CD-ROM disk out of the tray, and set it again with its label side upward.

- ❑ Is there any soil or crack on DVD/CD-ROM disk?

  → Make sure there is no soil due to fingerprint or others on the disk surface. Also make sure that there is no crack on the disk surface. Clean the disk surface if it is soiled. If read-out still fails, set another disk of which data has been successfully read out to check if the drive can read the disk.

- ❑ Is the DVD/CD-ROM disk in closed status?

  → Close the session or set the disk in closed status, and try to read again.

The system does not restart automatically when an error occurs, though the system is adjusted to automatic restarting:

→ When the system does not restart automatically, restart it manually.

Cannot turn the power OFF at the blue screen:

→ If you want to turn off the power at the blue screen, execute forced shutdown (forced shutdown: continue to press POWER/SLEEP switch for 4 seconds). The power will not be turned off if you press the switch for less than 3 seconds.

The modular server is not found on the network:

- ❑ Is the LAN cable connected?

  → Make sure the LAN cable is properly connected. Also make sure that the LAN cable to use conforms to the network interface standard.

- ❑ Have the protocol and service already configured?

  → Install the distinctive network driver for the modular server. Make sure that the protocol, such as TCP/IP, and services are properly specified.

- ❑ Is the transfer speed correct?

  → The internal LAN controller can accept the link speed of 1Gbps, 100Mbps, or 10Mbps. You can select a link speed from OS, however, do not use [Auto Detect] feature. Specify the "Link Speed & Duplex" value the same as the value specified for HUB. If you use the Wake On LAN feature, specify [Auto] for "Link Speed & Duplex".

Forgotten the login name/password to use the remote management feature through Web browser:

→ If you have forgotten the login name or password, restore the factory default including password by the following procedures.

IMPORTANT: Restoring the factory default clears configuration data created by NEC ESMPRO Manager. You need to save the configuration data before clearing password.

(1) Start NEC EXPRESSBUILDER DVD from the modular server.

(2) Select [Tool menu (Normal mode)] - [English].

(3) Select [System Management].

(4) Select [Initialize BMC].

(5) Power off the modular server.

(6) Remove the modular server from the Module Enclosure.

(7) Wait for at least 5 seconds, then install the modular server in the Module Enclosure.

Problems with NEC EXPRESSBUILDER

When the modular server is not booted from the NEC EXPRESSBUILDER DVD, check the following:

- ❑ Did you set the NEC EXPRESSBUILDER during POST and restart the modular server?

  → If you do not set the NEC EXPRESSBUILDER during POST and restart the modular server, an error message will appear or the OS will boot.

- ❑ Is BIOS configuration correct?

  → The boot device order may be specified with the BIOS SETUP utility of the modular server. Use the BIOS SETUP utility to change the boot device order to boot the system from the optical disk drive first.

  <Menu to check: [Boot]>

- ❑ Is the connected Flash FDD or inserted floppy disk formatted?

  → Make sure that the Windows recognizes that the connected Flash FDD or inserted floppy disk is formatted. If not, format it.

Problems with NEC ESMPRO

→ For detailed explanations on NEC ESMPRO, refer to the online document stored in the NEC EXPRESSBUILDER DVD that comes with your N8141-49F Module Enclosure (1way).

MAINTENANCE TOOLS

The Maintenance Tools is used for preventive maintenance, fault analysis, and several settings.

IMPORTANT: This guide contains procedures to use a floppy disk, however, your modular server is not equipped with factory-installed floppy disk drive and optical disk drive. Use the optional Flash FDD or USB FDD.

Starting Maintenance Tools

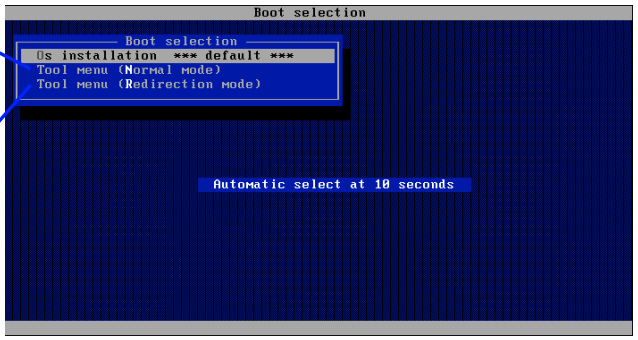
Run the Maintenance Tools according to the following procedure.

1. Turn on peripheral devices and the modular server in this order.
2. Insert the NEC EXPRESSBUILDER DVD supplied with your modular server into the optical disk drive.
3. Press **Ctrl**, **Alt**, and **Delete** to reboot the modular server from the NEC EXPRESSBUILDER. (You may also turn off and then on again to reboot the modular server.)

   System boots up displaying Boot selection menu.

Tool menu (Normal mode): Select this menu to use the tool on the local console.

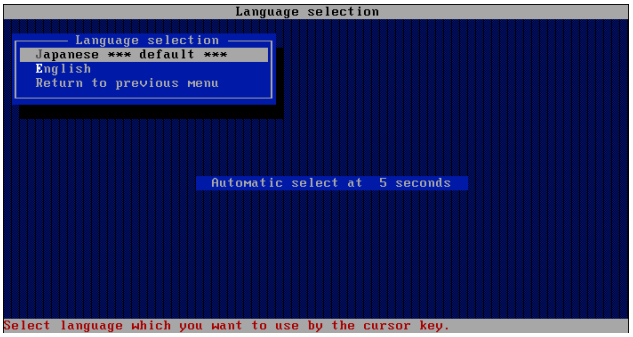
Tool menu (Redirection mode): Select this menu to use the tool from the remote console.



IMPORTANT: An initial selection of the menu is "Os installation". If any other menu is not selected, "Os installation" starts automatically 10 seconds after the Boot selection menu is displayed.

4. To use a tool on local console, select "Tool menu (Normal mode)".

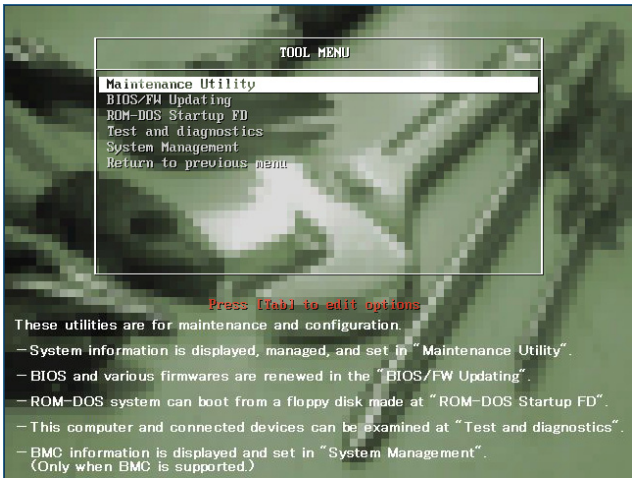
To use a tool from remote console, select "Tool menu (Redirection mode)".


Language selection
Language selection
Japanese *** default ***
English
Return to previous menu
Automatic select at 5 seconds
Select language which you want to use by the cursor key.

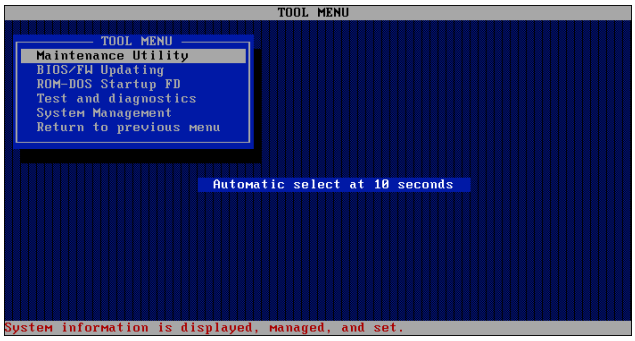
IMPORTANT: An initial selection of the menu is "Japanese". If any other language is not selected, "Japanese" starts automatically 5 seconds after the Language Selection menu is displayed.

5. Select "English".

The TOOL MENU as shown below is displayed.


TOOL MENU
Maintenance Utility
BIOS/FW Updating
ROM-DOS Startup FD
Test and diagnostics
System Management
Return to previous menu
Press [Tab] to edit options
These utilities are for maintenance and configuration.
－System information is displayed, managed, and set in "Maintenance Utility".
－BIOS and various firmwares are renewed in the "BIOS/FW Updating".
－ROM-DOS system can boot from a floppy disk made at "ROM-DOS Startup FD".
－This computer and connected devices can be examined at "Test and diagnostics".
－BMC information is displayed and set in "System Management".
(Only when BMC is supported.)

When you use a local console



When you use a remote console

6. Select a desired tool to start it.

Function of Maintenance Tools

The following functions can be performed in the Maintenance Tools.

- Maintenance Utility

  The Off-line Maintenance Utility is started in Maintenance Utility. The Off-line Maintenance Utility performs preventive maintenance and fault analysis. When you are unable to start the NEC ESMPRO to troubleshoot a problem, the Off-line Maintenance Utility can be used.

  IMPORTANT: The Off-line Maintenance Utility is intended for use of your service representative. The NEC EXPRESSBUILDER DVD contains a help file that describes operation of the utility, but do not attempt to use the utility by yourself. Contact your service representative and follow instructions.

  The Off-line Maintenance Utility provides the following features.

  – IPMI Information Viewer

    Use this menu to view the system event log (SEL), sensor data record (SDR), and filed replaceable unit (FRU) and to make a backup copy of them.

    Using this feature, you can find system errors and events to determine a maintenance part.

  – BIOS Setup Viewer

    Use this menu to export the current configuration data stored in SETUP utility to a text file.

  – System Information Viewer

    Use this menu to view information on the processor and the BIOS and export it to a text file.

  – System Information Management

    Use this menu to make a back-up copy of your data.

    Without the backup data, the system-specific information and/or configuration may not be restored.

    NOTES:

    - For how to make a backup copy of your data, see Chapter 2.
    - Only the authorized personnel is allowed to restore the backup data.

  – System Management

    Use this menu to set parameters of BMC (Baseboard Management Controller) for remote control and alert.

- BIOS/FW Updating

  Use this menu to update the software module such as BIOS and firmware of the modular server.

  IMPORTANT: Do not turn off the modular server while the update program is running. If the update processing is discontinued, the system becomes unable to start.

- ROM-DOS startup FD

  Use this menu to create a support disk for starting the ROM-DOS system.

- Test and Diagnostics

  Use this menu to perform various tests on the modular server system to check if the modular server functions are normal and if the connection between the modular server and additional board is normal.

  After the Test and Diagnostics is executed, a system check program assigned to each model starts. See Chapter 6 for details.

- System Management

  Use this menu to set parameters of BMC (Baseboard Management Controller) for remote control and alert.

  This menu's function is the same as the "System Management" of the "Maintenance Utility".

Maintenance Tools with Remote Console

This subsection describes the procedures for using Maintenance Tools with remote console.

Maintenance Tools contains the remote console feature that allows the system administrator to set up the modular server from the management workstation (management PC) via the network or the modular server's COM B (serial) port.

IMPORTANT:

- Do not use this feature on any other computer than the modular server, or on any other NEC Express series server. Doing so may cause a failure of the computer.
- Be sure to select [Tool menu (Redirection mode)] in [Boot selection] menu from the remote console.

Starting

The following two methods are available to start the modular server.

- Running Maintenance Tools from the management PC via LAN
- Running Maintenance Tools from the management PC via direct connection (COM)

For the procedure for starting Maintenance Tools with Remote Console, refer to the online document of NEC ESMPRO Manager.

IMPORTANT:

- Do not change the boot device order in BOOT menu in BIOS SETUP. NEC EXPRESSBUILDER cannot be used if the optical disk drive is not the first device to launch the system.
- Use the management LAN port for LAN connection. When Shared BMC LAN feature is used, use the LAN connector 1.
- Use the serial port for direct connection.
- To use this feature, you need to create a configuration file (3.5-inch floppy disk) that includes communication method between the modular server and the management PC, and various setup parameters. Use NEC ESMPRO Manager or run "System Management" menu from NEC EXPRESSBUILDER to create a configuration file. Save the configuration file into the root directory of the floppy disk as the following file name.
  – File name: CSL_LESS.cfg
- If you exit the BIOS SETUP by unusual way (e.g., forced power-off or reset), the redirection process may fail. In such a case, setup again by using the configuration file.

NOTE: The BIOS SETUP information is set as shown below.

- Serial Port: [Enabled]
  Base I/O Address: [3F8]
  Interrupt: [IRQ 4]
- BIOS Redirection Port: [Disabled]
- Baud Rate: [19.2K]
- Flow Control: [CTS/RTS]
- Console Type: [VT 100+]

SYSTEM MANAGEMENT

The System Management feature makes settings for using the notification function by the Baseboard Management Controller (BMC) and remote control function from the management PC.

Starting the System Management

The System Management may be started from the NEC EXPRESSBUILDER DVD in the following procedure.

1. Insert the NEC EXPRESSBUILDER DVD into optical disk drive and restart the system.
2. Select [Tool menu] – [English] – [System Management].

   Or, select [Tool menu] – [English] – [Maintenance Utility]– [System Management].

Features of System Management

The System Management provides the following features.

- Display of firmware management information

  Displays information on the BMC (Baseboard Management Controller).

- Setting of System Management

  Sets notification function using the BMC and remote control function from the management PC, and performs notification test.

- Initialization of BMC

  Restores the default setting of BMC.

For more information, see the online help.

RESETTING THE MODULAR SERVER

This section describes how to reset the modular server when the modular server halts or when you want to restore the factory-set BIOS configuration.

IMPORTANT: Resetting the modular server clears the DIMM memory and the data in process. To reset the modular server when it is not frozen, make sure that no processing is in progress.

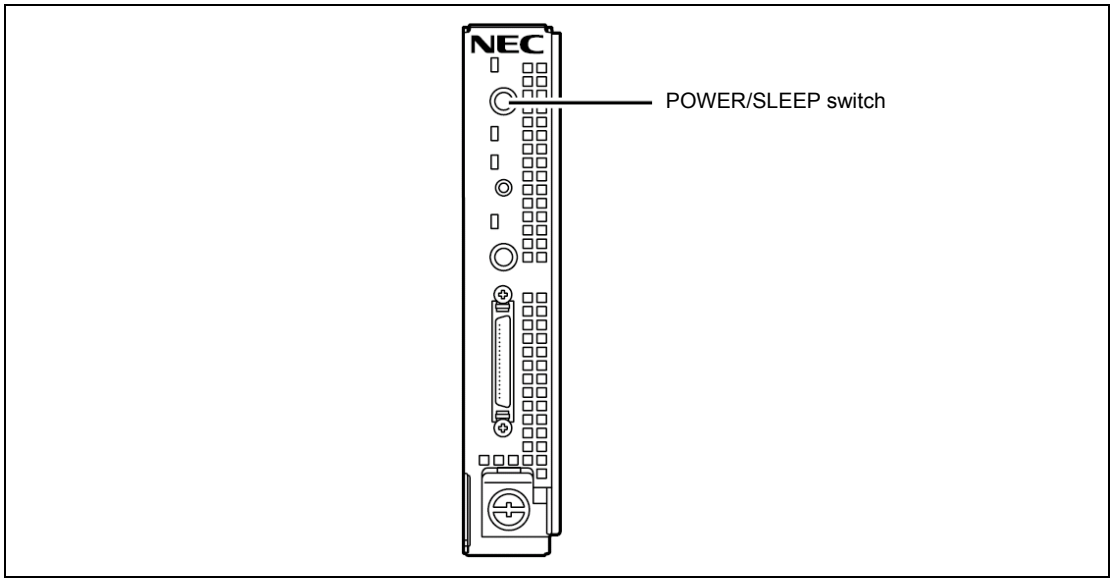
Software Reset

If the modular server halts before starting the OS, press and hold **Ctrl** and **Alt** and press **Delete**. This restarts the modular server.

FORCED SHUTDOWN

Use this function when an OS command does not shutdown the modular server, the POWER/SLEEP switch does not turn off the modular server, or resetting does not work.

Press and hold the POWER/SLEEP switch on the modular server for at least four seconds. The power is forcibly turned off. To turn on the power back again, wait for approximately 5 seconds after turning off the power.



IMPORTANT: If the remote power-on feature is used, cycle the power once to load the OS, and turn off the power again in the normal way.

CLEARING CMOS DATA AND PASSWORD

With the pre-installed SETUP utility, you can set desired passwords to protect the data stored in the modular server against access from unauthorized users. When you forget the passwords, however, you may want to clear them. The following describes how to clear these passwords.

You can also use the following procedure to clear the CMOS data in the modular server.

IMPORTANT:

- Clearing the CMOS data resumes the factory-set configuration data.
- Use the clip over jumper pins (pins 1 and 2) on the modular server.
- Place the clip over the jumper pins 1 and 2 after use to keep the pin. Placing the clip over any other pins may cause malfunction of the modular server.
- Do not change any other switch settings. Any change may cause the modular server to fail or malfunction.
- Do not lose the clip.

To clear passwords or the CMOS data, use the jumper switch on the modular server.

The following describe the clearing procedure.

⚠ WARNING

Observe the following instructions to use the equipment safely. Failure to follow these instructions may result in death or serious personal injury. See pages 1-2 to 1-6 for details.

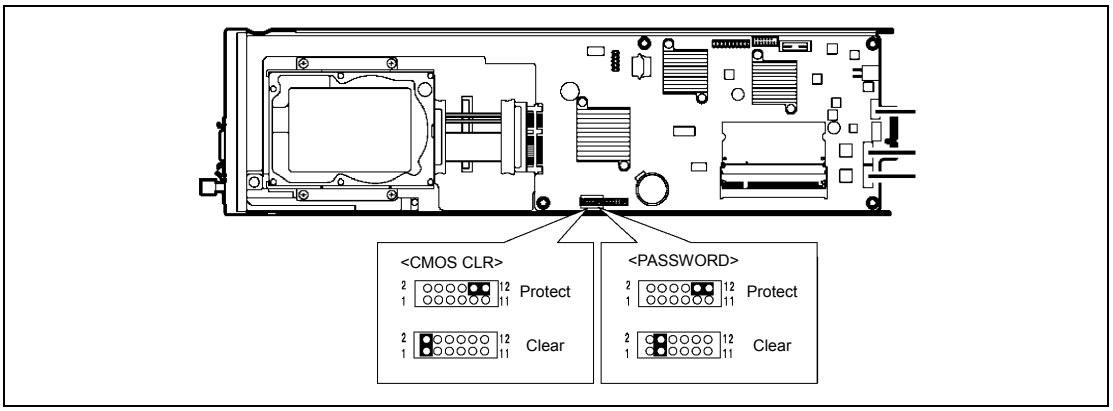
- Do not disassemble, repair, or alter the equipment.
- Do not remove the lithium battery.
- Disconnect the power plug before working with the equipment.

⚠ CAUTION

Observe the following instructions to use the equipment safely. Failure to follow these instructions may cause a fire, personal injury, or property damage. See pages 1-2 to 1-6 for details.

- Avoid installation in extreme temperature conditions.
- Make sure to complete device installation.
- Do not pinch your finger(s) with component.

The following figure illustrates the jumper switch location.



Clearing CMOS Data

1. Record the current BIOS settings.
2. See the section "Preparing for Installation and Removal" as described in Chapter 8 of this guide to prepare.
3. Move the clip over pins 1 and 2. Then put it back over pins 10 and 12.

   Short-circuit pins 10 and 12 to protect the CMOS data.

   Short-circuit pins 1 and 2 to clear the CMOS data.
4. Run BIOS SETUP utility and restore the parameter settings recorded in Step 1.
5. Save and exit the SETUP utility.

Clearing Password

1. See the section "Preparing for Installation and Removal" as described in Chapter 8 of this guide to prepare.
2. Move the clip over pins 3 and 4.

   Short-circuit pins 10 and 12 to protect the password.

   Short-circuit pins 3 and 4 to clear the password.
3. Run BIOS SETUP utility, and power off the server.
4. Put the clip back over pins 10 and 12.
5. Run BIOS SETUP utility, and set the password as needed.
6. Save and exit the SETUP utility.

Chapter 8

Upgrading Your Modular Server

This chapter describes optional devices available for the modular server, procedures to install or remove such optional devices, and notes on using them.

IMPORTANT:

- Optional devices described in this chapter may be installed or removed by any user. However, NEC does not assume any liability for damage to optional devices or the modular server or malfunctions of the modular server resulted from installation by the user. NEC recommends you ask your service representative for installing or removing any optional devices.
- Be sure to use only optional devices and cables authorized by NEC. Repair of the modular server due to malfunctions, failures, or damage resulted from installing such devices or cables will be charged.

SAFETY NOTES

Observe the following notes to install or remove optional devices safely and properly.

⚠ WARNING

Observe the following instructions to use the modular server safely. Failure to follow these instructions may result in death or serious personal injury. See pages 1-2 to 1-6 for details.

- Do not disassemble, repair, or alter the modular server.
- Do not remove the lithium, Li-Ion, or NiMH battery.

⚠ CAUTION

Observe the following instructions to use the modular server safely. Failure to follow these instructions may cause a fire, personal injury, or property damage. See pages 1-2 to 1-6 for details.

- Avoid installation in extreme temperature conditions.
- Make sure to complete device installation.
- Do not pinch your finger(s) with component.

ANTI-STATIC MEASURES

The modular server contains electronic components sensitive to static electricity. Avoid failures caused by static electricity when installing or removing any optional devices.

- Wear a wrist strap (an arm belt or anti-static glove).

  Wear a wrist strap on your wrist. If no wrist strap is available, touch an unpainted metal part of the cabinet before touching a component to discharge static electricity from your body.

  Touch a metal part regularly when working with components to discharge static electricity.

- Select a suitable work space.
  - Work with the modular server on the anti-static or concrete floor.
  - When you work with the modular server on a carpet where static electricity is likely to be generated, make sure take anti-static measures beforehand.

- Use a work table.

  Place the modular server on an anti-static mat to work with it.

- Cloth
  - Do not wear a wool or synthetic cloth to work with the modular server.
  - Wear anti-static shoes to work with the modular server.
  - Take off any jewels (a ring, bracelet, or wrist watch) before working with the modular server.

- Handling of components
  - Keep any component in an anti-static bag until you actually install it to the modular server.
  - Hold a component by its edge to avoid touching any terminals or parts.
  - To store or carry any component, place it in an anti-static bag.

CONFIRMATION AFTER INSTALLATION/REMOVAL

Confirm the following after installing an option and removing a component:

- Installing removed components exactly as they were

  Install the components and cables, which were removed and disconnected for addition of an option, exactly as they were. Assembling without a component being installed or a cable being disconnected causes the equipment to malfunction.

- Confirming that no parts such as screws are left in the chassis

  Confirm that conductive parts such as screws are not left in the chassis. Turning on the power with a conductive part on the mother board or cable terminal causes the equipment to malfunction.

- Confirming the cooling effect in the equipment

  Confirm that the ventilating holes are not covered with an internally connected cable. Insufficient cooling effect raises the internal temperature, which causes the equipment to malfunction.

- Confirming operation with a tool

  Some additional devices require the diagnostic utility or BIOS SETUP utility to check if they are installed correctly. For details, see the procedure for additionally installing the target device.

PREPARATION FOR INSTALLATION/REMOVAL

To install or remove an optional device in/from the modular server, you should first remove the modular server from the Module Enclosure.

IMPORTANT:

- Remove the target modular server only. Do not remove any other blank cover or modular server from another slot. Be sure to install or remove the modular server one by one.
- Put the removed modular server in the following place.
  – Place with little dust
  – Place with less humidity
  – Place that satisfies the requirements for anti-static measures
  – Place where intense vibration or shock may not be generated
  – Place where intense magnetic field is not generated

INSTALLATION/REMOVAL PROCEDURE

Install or remove the devices in the following procedure.

SO-DIMM

The SO-DIMM (Small Outline Dual Inline Memory Module) is inserted into the SO-DIMM socket on the modular server. The modular server has two SO-DIMM sockets. Install or remove two DIMMs one by one.

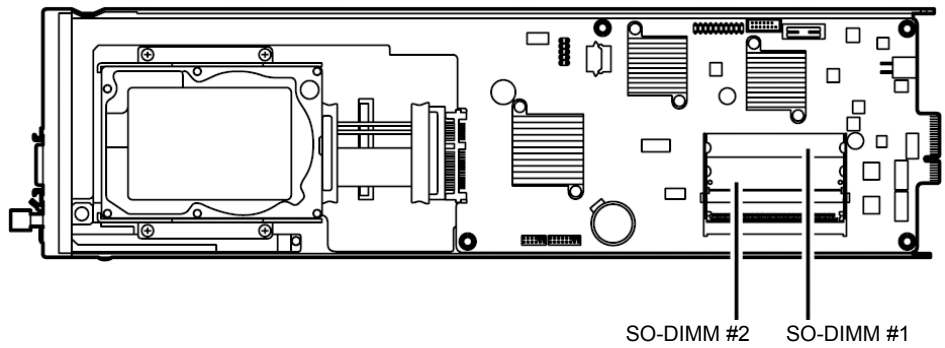
Install the SO-DIMM in SO-DIMM socket #1, then in socket #2.

NOTES:

- Up to 2GB memory can be added.
- The modular server requires at least one DIMM to operate.

IMPORTANT:

- The DIMM is easily affected by static electricity. Handle the DIMM after making your body contact with a metallic frame section of the cabinet to discharge the static electricity from your body. Do not make bare hands contact with terminals and components on the DIMM. In addition, do not put the DIMM on a desk directly. See "Static Precautions" for details of the static electricity.
- Do not use any DIMM not approved by NEC. If an unapproved third party's DIMM is installed in the modular server, not only the DIMM but also the modular server may be defected. You will be charged by any repair of a malfunction or defect caused by such a device within the warranty period.



Adding Order and Precautions

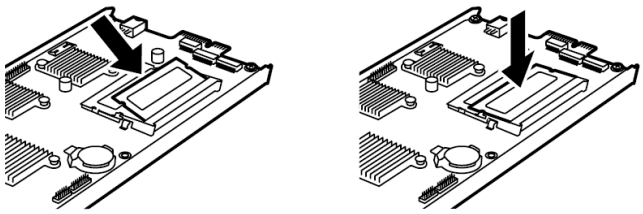
- Install DIMMs one by one.
- Two DIMMs must be the same capacity and same speed. (Check the labels on the DIMM board.)

Installation

Install the DIMM on the modular server according to the following procedure:

1. After the shutdown processing for the modular server to be removed, turn off the power of the modular server.
2. Take out the modular server from the Module Enclosure.

   See Chapter 3 for details.
3. Place the modular server on anti-static sheet with little dust.
4. Insert the DIMM into the socket and push it straight.



IMPORTANT: Use extreme care when installing a DIMM. Applying too much pressure can damage the socket.

NOTE: Make sure of the orientation of the DIMM. The connecting side of the DIMM has a cut-out (key slot) to prevent an incorrect insertion.

5. Power on the modular server and make sure that no error message appears on the POST screen.

   See Chapter 7 for details of the POST error messages.

   If the modular server is not started, the DIMM may not be installed in the socket correctly. Install the DIMM again.
6. Run SETUP and select [Advanced] – [Memory Configuration] to make sure that "DIMM #x Status" (x: DIMM number) shows "Normal" (see Chapter 4).
7. Set [Advanced] – [Reset Configuration Data] in the [Advanced] menu to [Yes].

   This is required to update the hardware configuration information. See Chapter 4 for details.

Removal

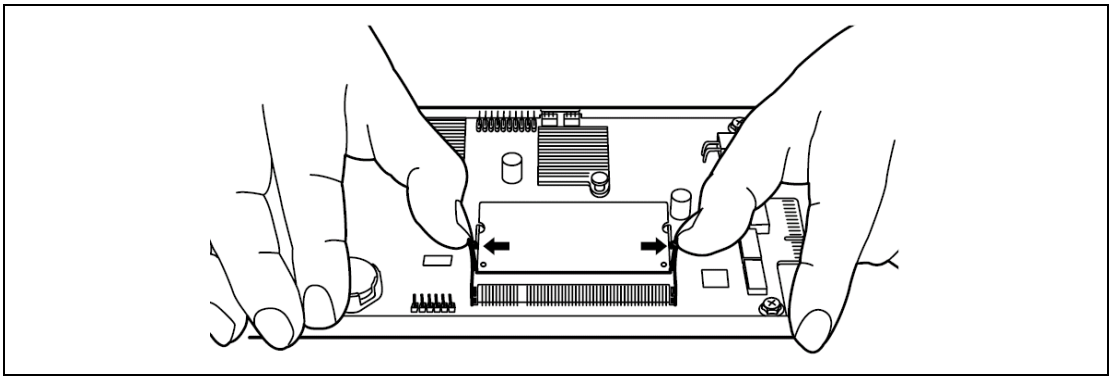
Remove the DIMM in the following procedure.

> **NOTE:** To remove the defected DIMM, check the error message appearing on POST or NEC ESMPRO to confirm the modular server on which the detected DIMM is installed.

1. After providing the shutdown processing for the modular server to be removed, turn off the power of the modular server.
2. Pull out the modular server from the Module Enclosure.

   See Chapter 3 for details.
3. Place the modular server on anti-static sheet with little dust.
4. Open the levers at both ends of the DIMM socket to be removed.

   The lock is released to allow you to remove the DIMM.



5. Install a new DIMM (only when replacing a DIMM).
6. Turn on the power of the modular server. Make sure that no error message appears in POST.

   See Chapter 7 for details of the POST error messages.

   If the modular server is not started, the DIMM may not be installed in the socket correctly. Install the DIMM again.
7. Run SETUP and select [Advanced] – [Memory Configuration] to make sure that "DIMM #x Status" (x: DIMM number) shows "Normal" (see Chapter 4).
8. Set [Advanced] – [Reset Configuration Data] in the [Advanced] menu to [Yes].

   This is required to update the hardware configuration information. See Chapter 4 for details.

Hard Disk Drive

The modular server can contain only one 2.5-inch SATA hard disk drives.

IMPORTANT:

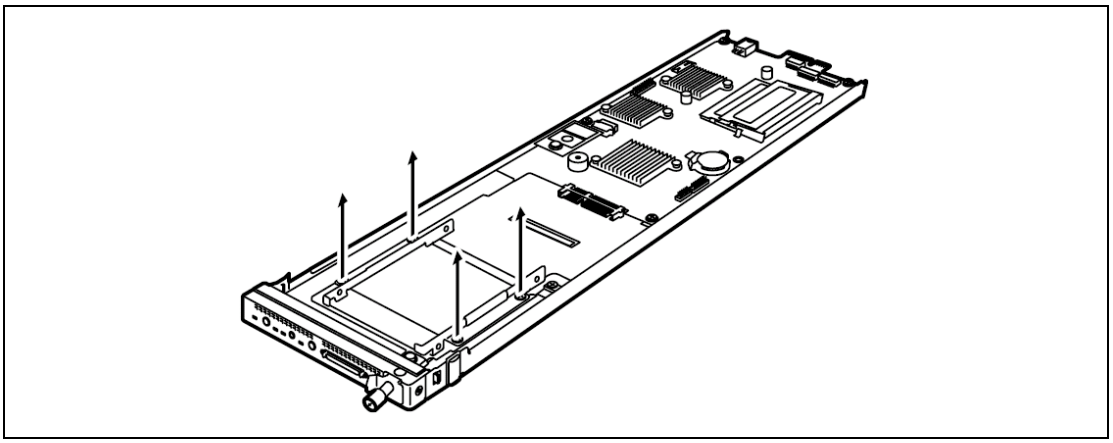
- The hard disk drive is extremely sensitive to static electricity. Make sure to touch the metal frame of the cabinet to discharge static electricity from your body before handling the hard disk drive. Do not touch the terminals and parts on the hard disk drive by a bare hand and place the hard disk drive directly on the desk. For static notes, see the section "Anti-static Measures" described earlier.
- Do not use any hard disk drives not approved by NEC. If an unapproved third party's hard disk drive is installed on the modular server, not only the hard disk drive but also the modular server may be defected.
- Pay attention not to apply shock or vibration to the hard disk drive. Do not push the surface of the hard disk drive when installing or removing the hard disk drive. Doing so may cause a failure of the hard disk drive.

Installation

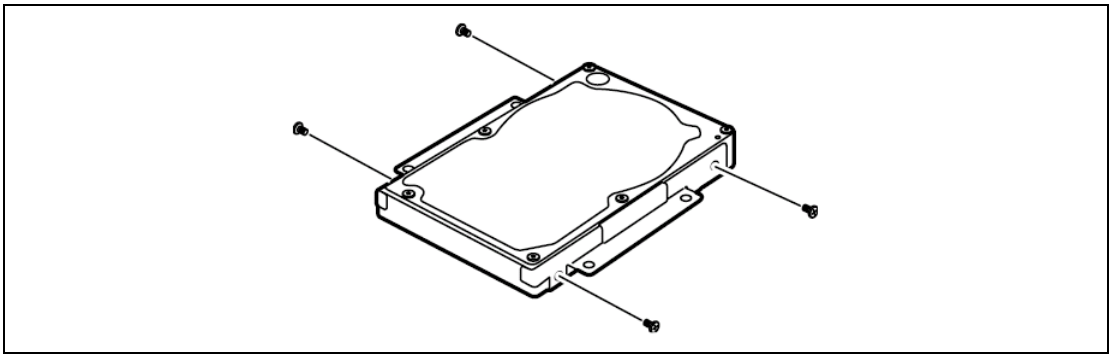
Install the hard disk drive in the following procedure.

1. After providing the shutdown processing for the modular server to be removed, turn off the power of the modular server.
2. Pull out the modular server from the Module Enclosure.

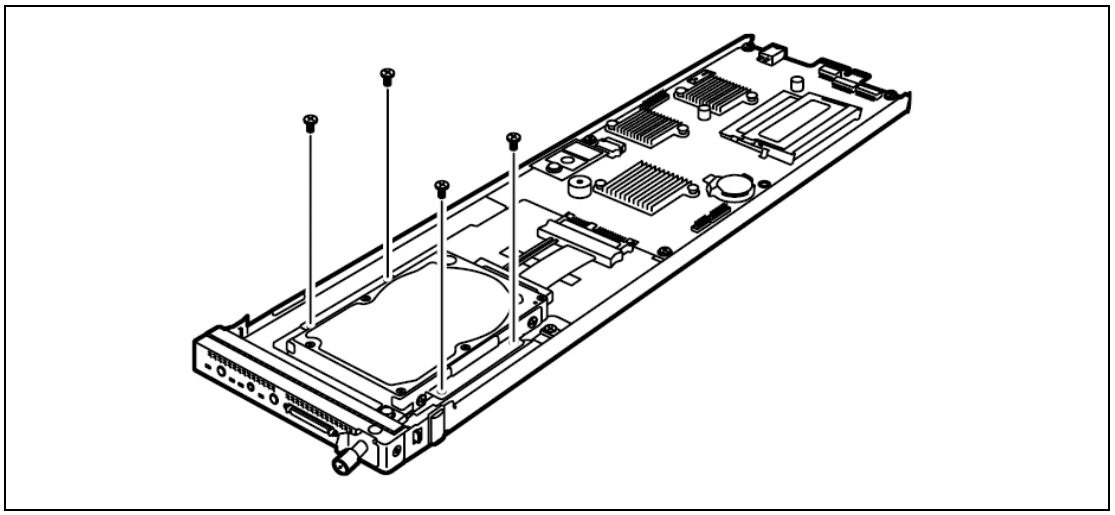
   See Chapter 3 for details.
3. Place the modular server on anti-static sheet with little dust.
4. Remove the four screws from the hard disk drive bracket.



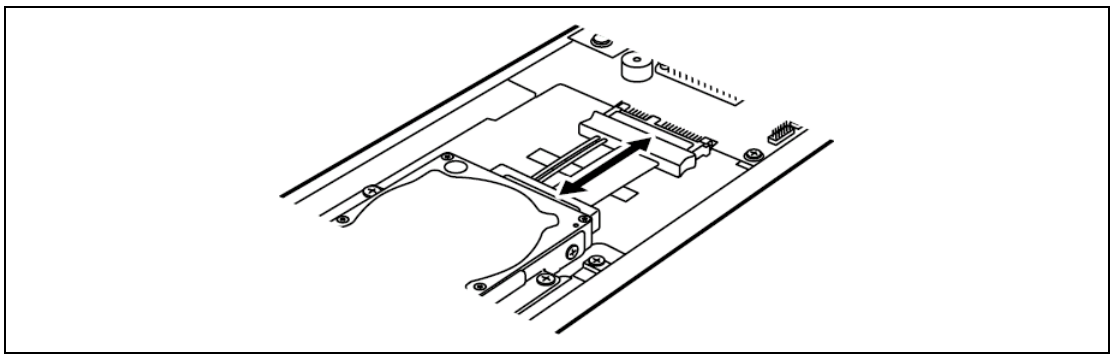
5. Secure the hard disk drive to the hard disk drive bracket with four screws.



6. Install the hard disk drive to the modular server. Use the four screws you have removed from the modular server in Step 4.



7. Connect the internal SAS/SATA cable K410-223(00).



NOTES:

- Make sure that the cable is surely connected to the hard disk drive and that connector on mother board.
- SAS hard disk drive is unavailable for the modular server.

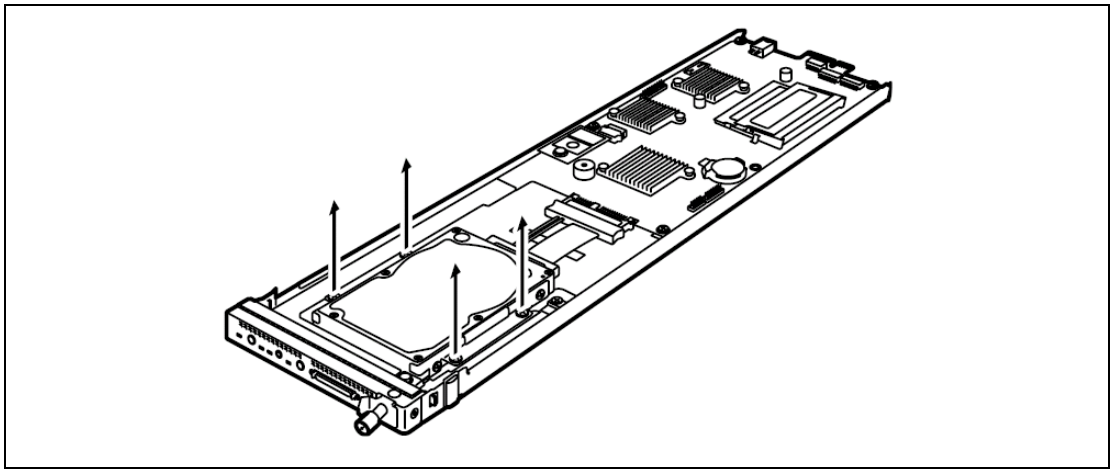
Removal

Install the hard disk drive in the following procedure.

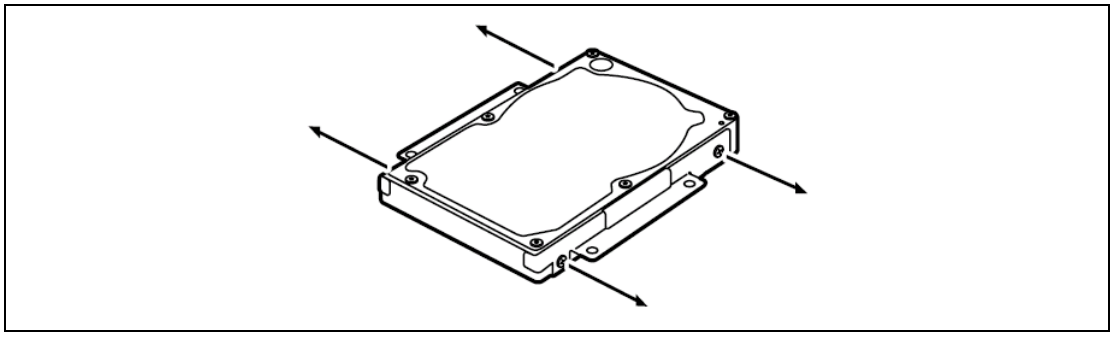
1. After providing the shutdown processing for the modular server to be removed, turn off the power of the modular server.
2. Pull out the modular server from the Module Enclosure.

   See Chapter 3 for details.
3. Place the modular server on anti-static sheet with little dust.
4. Remove the internal SAS/SATA cable K410-223(00).

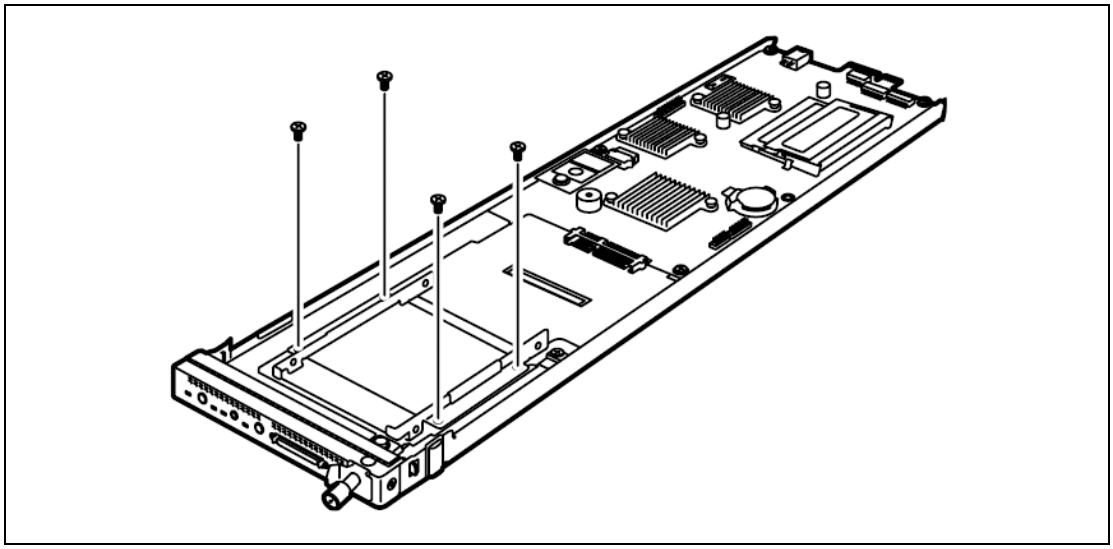
   IMPORTANT: Keep the removed cable for future use.
5. Remove the four screws from the hard disk drive bracket on modular server.



6. Remove the four screws from the hard disk drive.



7. Secure the hard disk drive bracket to the modular server with four screws.



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Appendix A

Specifications

Item		NEC Express5800/E110b-M N8100-1635F
CPU	Type	Intel® Atom™ processor N450
	Clock	1.66GHz
	2nd Cache	512KB
	Standard	1
	Maximum	1
Chipset		Intel 82801HBM
Memory	Standard	None (Required option)
	Maximum	2GB
	Adding time	2
	Memory module	DDR2-667 SO-DIMM
	Error check	None
Hard disk drive	Standard	None
	Maximum	500GB
Auxiliary input device	Floppy disk	Option (USB)
	CD/DVD-ROM	Option (USB)
LAN interface		1000Base-T × 2
External interface		SUV connector (to be connected to the front panel, serial ×1, VGA×1, USB×2) ×1
External dimensions (mm)		119.4 (H) × 453.5 (D) × 22.1 (W)
Weight		1.0 kg
Power supply		+12Vdc (supplied from the Module Enclosure)
Power consumption (+12Vdc)		27 W
Environmental requirements	Temperature	10 to 40°C
	Humidity	20 to 80% RH (no condensation)

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Appendix B

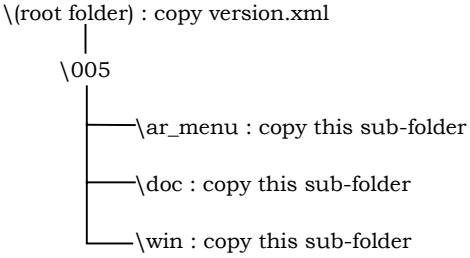
Using a Client Computer Which Has a CD Drive

The NEC EXPRESSBUILDER is stored in DVD.

If you want to install the management software of NEC EXPRESSBUILDER to the client computer that has no DVD drive, make a CD-R from EXPRESSBUILDER DVD according to the following steps.

> **NOTE:** This procedure can copy only one CD at the purpose of installing the management software to the client computer.

1. Insert the EXPRESSBUILDER DVD into the computer which has a DVD drive.
2. If Autorun menu appears, close the menu.
3. Run Explorer and copy the following files/folders to a hard disk drive.



4. Copy the above files/folders to a CD-R.

   Match the root folder when you copy onto a CD-R.
5. Delete the files/folders which you have copied in Step 3 from the hard disk drive.
6. Insert the CD-R to a client computer onto which you want to install the management software.
7. Run the following file in the CD-R by using Explorer.

   \005\ar_menu\autorun_menu.exe (for Windows 32 bit edition)

   \005\ar_menu\autorun_menu_x64.exe (for Windows 64 bit edition)

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